

FLIGHT

First Aero Weekly in the World.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

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EDITORIAL COMMENT.

What is Military Aviation for?

If we were living just now in Cetinje, Berane, Skutari, or any one of the other places where the even sing-song of civilised life is really discorded by the blatant trumpets of war itself, not merely accented by the high G of rumour, we should doubtless perceive that *military* aviation is first, last and always, a purely national affair. If, further, there suddenly appeared in the air a goodly fleet of aeroplanes, flying on our behalf with such superior efficacy that the tide of fortune was turned in our favour, we should not stop to criticise very severely the *modus operandi* whereby the war department of the ministry succeeded in thus getting ahead of its neighbours and in keeping there right up to the critical moment.

An idealistic hypothesis truly, but it is necessary to have some standard above the attainable in life if we would hope to keep one goal in focus from every point of view, and to see it clearly despite the press of practical existence. So with military aviation in England just now; what is it for if not to assist in the better protection of this country in time of war, and to what end is a real lead

in military aeroplane design if not to throw the weight or the unexpected into the balance in our favour?

The "authorities," after the manner of those who have no friends, come in for more kicks than ha'pence, and have doubtless learned ere now to accept their lot with equanimity; but there is a persistence about the abuse being levelled against those who stand at the head of official British aeronautics that harbours no good for the industry in whose interests it professes to be made, and still less for the martial welfare of the nation. For our own part, we would fain give the subject of the Government and aeronautics a rest until the close of the financial year, but it is difficult for a journal like FLIGHT to ignore outside opinion that is publicly expressed. All the same, we do not believe that the industry in its present state derives encouragement from throwing the limelight on an internal sore, real or imaginary, for it is quite certain that the directors of companies with capital to spare for the proper development of original aeroplanes are not readily to be persuaded to invest it therein by any attempt to convince *them* that the full extent of the business they are likely to get from the Government is a few odd parts to be manufactured to specification under competitive contract, which is the war cry in the latest phase of the attack.

Let us at least try to look at the *facts* in a reasonable light, and also endeavour to feel some willingness to believe that public servants may still be gentlemen and, as such, men of their word. Col. Seely has said over and over again that the R.A.F. should not be used as a competitive manufactory on a large scale against the interests of private enterprise. It is difficult to obtain exact figures, but we should estimate that up to the present about seventy aeroplanes have either been built or are on order outside the R.A. Factory, and as the accounts that we have had from pupils at Upavon and elsewhere suggest that the main difficulty, at any rate until recently, has been to get deliveries of machines already overdue, it would seem as if at least some British firms have had their hands more than filled by Government orders.

Some of these machines, not exceeding, we should guess, a dozen in number, are duplicates of the biplane BE 2, evolved at the Royal Aircraft Factory, and by general consensus of opinion, one of the best flyers ever produced. A few firms, we know, have been building these replicas complete to specification and supplying them to the authorities fully equipped with engines. Of the firms that received these orders, not every one could have as readily justified a similar demand for its own machines on demonstrated merits in the Military Trials.

From a purely National standpoint, it seems to us equally difficult to reconcile the Government's own procedure of issuing complete drawings to these firms, with the best interests of the country in an emergency of unexpected war (and war, let us never forget, is the purpose of the national aeroplane). A design that has the official cachet of the British Government, and is, besides, the production of its Royal Aircraft Factory, is a matter of no small interest to our neighbours, and is worth money to any unscrupulous person who is not above selling his knowledge of it abroad. How many firms in the aeroplane industry could offer the Government adequate evidence of their ability to keep secret an aeroplane design that their employees and pupils (many of them of foreign nationality) had every opportunity of studying *as a whole and in detail*? Very few, we should imagine, and speaking quite frankly, we regard the policy of building BE 2 as a complete machine outside the factory to be a mistake in *principle* from the *national standpoint of British supremacy* in aeronautics. This opinion is unaffected by any consideration as to the merits or otherwise of BE 2 itself, but we might mention in parenthesis that we should have spoken still louder if our opinion of BE 2 as a war machine were equal to our appreciation of its merits as an aeroplane pure and simple. Also, it goes without saying, that our remarks are entirely without personal reference to the *bona fide* intentions of the firms in question.

If the Royal Flying Corps can use BE 2, or any other machine, to *particular* advantage (and let us not forget that it is the flying officers of the R.F.C. who are the real judges of a machine's merit; because, in the long run, it is only what they can do with the machines they use that is of any consequence in war), it is the Government's duty to try and secure the *exclusive* benefits of the type to the nation. This opinion is also unaffected by any consideration as to the place in which the design originated; if it is with a private firm then the Government should try to buy up their interest at a reasonable figure, always remembering that it is the people who pay and if it is with the R.A.F., it should take every precaution that it does not lose the property for which the people have already paid.

As it is unreasonable to suppose that one and the same concern can *always* do better than all the others, so is it all the more absurd to argue that any machine devised by the R.A.F. must for ever be so very much better than anything else produced under the stimulus of private enterprise as to necessitate the use of R.A.F. machines *and no others* by the Royal Flying Corps. The British Government must forge ahead of all other nations in aeronautics, and to do so it must obtain the best machines that it can get. If any firm can design a machine that the Royal Flying Corps prefers above others, that company will necessarily receive orders, and even, perhaps, an offer for the exclusive rights if the machine happens to be one of exceptional merit, such as might give the nation an advantage in war.

With the military aeroplane in its present undeveloped state there is an especial encouragement for private enterprise in the obvious latitude for original design. A firm with capital and business ability who will collect to itself genuine talent, under a proper system of organisation, cannot fail to produce aeroplanes that the Government must buy. If, on the other hand, the "talent" is of the kind that exercises itself with dictating requirements to suit its own productions instead of making a study of the actual users' point of view, to serve as the basis for the

evolution of a really clever design, commercial failure will naturally result in the aeroplane industry, as in any other line of business, for the Government has never undertaken to spend the public money on buying *everything* that private enterprise likes to offer, and it would come in for very severe criticism from the nation at large if it did.

Pioneer work is costly at the best, and the firm that runs a progressive establishment in aeronautics will have its "brains" constantly engaged on something new, whether the present best machine is its own or the product of another factory. In commerce, this pioneering part of the concern is profitable only in proportion to its ability to evolve something sufficiently good to secure for the manufactory a large quantity of repeat orders. It is the multiple reproductions of a factory that pay, not the single production of the experimental workshop. In commerce, unlike art, no one is concerned with the original masterpiece; the prototype, which has cost thousands to evolve, as likely as not finds its resting place on the scrap heap, while the firm proceeds to seek profit in cheaper duplicates.

Under this very natural system, a company that cannot command the brains requisite to evolve the best machine (and private enterprise has a longer purse than the Government when it comes to paying individual salaries) ordinarily has to be content with second-class business or none, but in aeronautics just now the field is potentially wide enough to give any reasonable number of firms an equal chance of simultaneously occupying the front rank, while any firm that falls behind a step as a pioneer in its workshop can still make a bid for profitable business in its factory by undertaking the construction of parts for those machines of which the Government possesses the rights.

To argue that such business is unprofitable, is merely to point to lack of commercial organisation, for it cannot be too clearly understood by the successful *designer* of aeroplanes that his work does not possess an intrinsic value in itself, as does that of the sculptor, for instance, because his field of labour is fundamentally commercial, while that of the sculptor is purely artistic. Commerce is solely concerned with quantities, whereas art is essentially related to the unique.

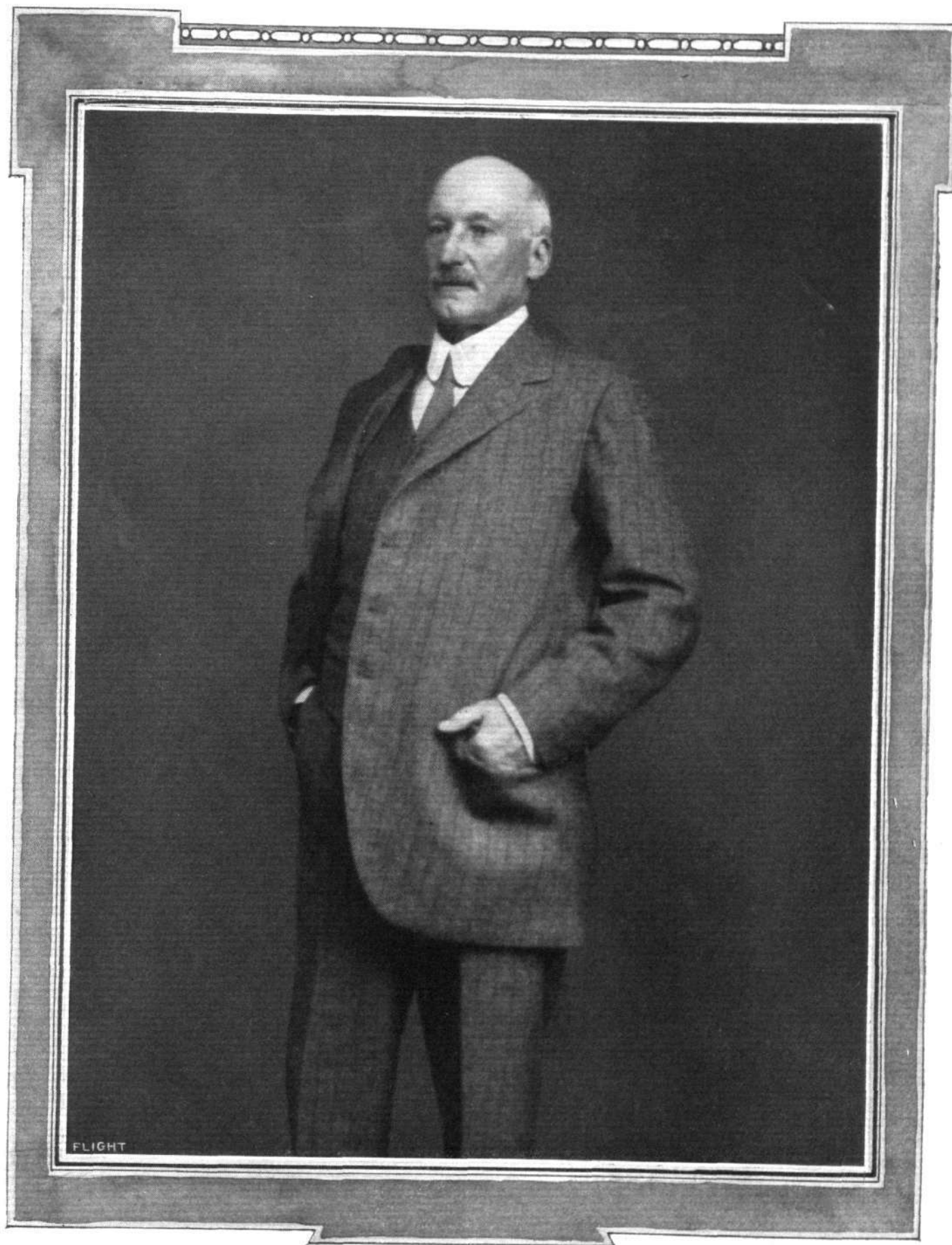
An artist may sell for 20,000 guineas a piece of work that cost him less than a thousand pounds to produce; in commerce it is the workman who turns out parts by the hundred, at a cost that is well below their market value, who makes the firm's profit—and it is the designer who is the magician, who brings the workman his *opportunity* to work.

So, in an industry, one makes money by supplying a demand for quantity and one seeks to create a demand that is exclusive to oneself, firstly by originality in design and secondly by excellence of workmanship. The profit on 100 similar wings ought to be very little affected by any consideration as to what becomes of them, or whether they are for a Government machine or one designed by the firm. Proper works management ought to know to a penny how much the wing costs to make, and this out-of-pocket expenditure must command its due percentage of profit from the estimating office, no matter whether the estimate is for the wings alone or for machines of which the wings only form a part. In fine, if the Government supplements its purchase of a firm's standard aeroplanes by an order for, say, £1,000 worth of a few special parts, we fail to see why it should be less profitable than the same amount of additional money

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MEN OF MOMENT IN THE WORLD OF FLIGHT.



The Chairman of the Aeronautical Society of Great Britain: Major-General R. M. RUCK, C.B., R.E.

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spent on an extra complete machine. On the contrary, it ought to be more profitable, because the factory of any works is nearly always capable of producing parts at a greater rate than the other departments can assemble and test them as complete machines, and in any case it would be rather a feeble organisation that proved unable to cope with the parts that are likely to be ordered by the Government for any of its own machines just now when the money available for the purchase of aeroplanes has essentially to be divided among so many different types.

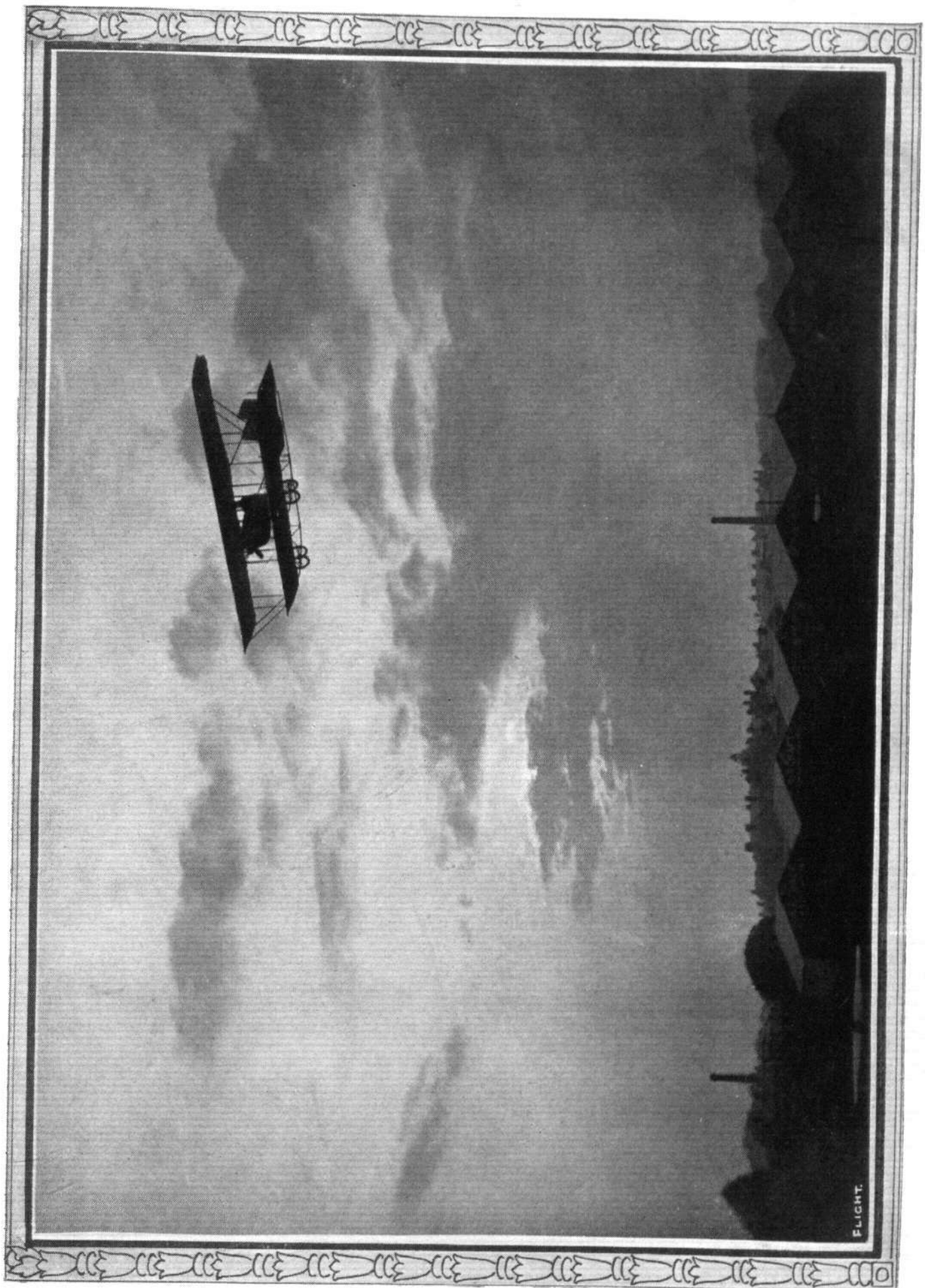
There is one real danger, and only one, in the present condition of national aeronautics, and that is the possibility of reducing the next vote by destroying public confidence in the Government's ability to use the people's money to advantage in their as yet only half-expressed desire to have England supreme in the air. To this end, the persistent blackening of the outlook by false premises and the widespread publication in the Press of spontaneous criticism based on warped views of detached incidents, will do more harm than anything. These days, when so many different parties are clamouring for every penny that the already over-taxed subject can pay, it is exceedingly difficult for a small group of enthusiasts on the subject of flying to make their voices heard, for which reason it is of very vital importance that the Press should lend its help in swelling the volume at the critical moment, and should meantime use its influence in preparing a sympathetic public ear to the appeal. Instead of doing so, a section at least, appears to us to be distilling poison therein, and if it has the effect of withering the funds, the industry, at any rate, should know who has been to blame. We who have conducted *FLIGHT* these four years should surely have some reason to know the state of the industry and some claim to hold a sound opinion as to what is vital to its future.

The industry needs money behind it as well as money in front of it: without the one or the other it ceases to be. Capital is essential to the conduct of business, for an order even for a hundred thousand pounds worth of goods is useless unless the organisation is already established that will turn them out at a profit. A few real sportsmen have been willing to take chances and now a section of the Press seems to be doing its best to frighten them out again by telling them that it is impossible to back winners. The Government, we are asked to believe, is going to design all the R.F.C. machines itself from now on until the end of time, and nobody wants its orders for parts. On the face of it could any deductions from the facts be more absurd—or any published opinion more antagonistic to the interests of the industry? Who is the Government pray? that it can command the services of *all* the clever men in the world. The truth of the matter is that, at the moment, it is exceedingly well served, but another generation may have reason to think differently of its contemporary public servants in this department. In any case, there are plenty of designers who are thoroughly deserving of the encouragement of private employment and the firms who employ them must not lose faith in those of them who have not yet succeeded in building machines that the Royal Flying Corps wants. Nor is it any use labelling the R.F.C. foolish—which is what much of the abuse of the Government really amounts to—because it does not recommend the purchase of machines that it does not care to use. There is always someone, of course, who says he knows what you want better than you do yourself, but the best of us buy what pleases us most in the long run, all the same.

In conclusion, let us reiterate the cardinal points in the situation, as we honestly believe them to be, so that there may be no mistaking our meaning. In the first place, we believe that it is worth any firm's while to employ the best designer they can either afford or secure, to study the problem of the military aeroplane from the R.F.C. point of view. In the second place, we believe that if he succeeds in evolving a machine that gets nearer to the military requirements in any important particular, without prejudice to its other qualities, that the firm will have all the business it can handle, not only from this country but from abroad. The intrinsic value of the design will lie in its power to command orders for duplicates, and the firm's profit will come from its ability to manufacture commercially. For this reason, we say that the same firm should also make a profit out of any orders for other aeroplane parts that it cares to undertake, whether they are for the Government or for anyone else. Thirdly, we believe that the outlook in reality indicates not only an immense use for aeroplanes all over the world, but also a particularly active demand for the latest type when any firm succeeds in evolving a material improvement. In military aviation, this will, more particularly, be related to the development of qualities that are especially useful in war, but the problem of obtaining a higher degree of inherent security in the air, upon which a few of our best designers are engaged, will certainly bring an influx of general business when it has been well demonstrated to have attained a successful issue.

As to the Government in its relation to flight, let us remember that its power to deal depends on the money that the people are willing it should have to spend, and for this reason let us do everything possible to inspire the public with confidence that its funds are being well used, as indeed they are, in the national service. Secondly, in this matter let us bear in mind that it is the war aeroplane in which the Government is really interested and that its purchase of flying machines in general must ever be governed by this end in view. The pilots who use the machines judge of their qualities by the same standpoint, and it is they whom the manufacturer must please by building machines that will facilitate the superior performance of their duties. On this score of *design* the manufacturers are in competition with each other and with the Government, whom, the people have agreed, shall have a Royal Aircraft Factory of its own, backed up by an Advisory Committee and a department at the National Physical Laboratory for scale model research. This combination represents the nation's brain in aeronautics, but *the nation's manufactory* for the product thereof is *the British flight industry* at large—which makes *the profit*. If a private firm, with its own brain, can do better than the Government in the design of a machine—and there is no reason why it should not do so, for all the talent is not under Government control—so much the *more* profitable for that company in particular, because it will get a larger *number* of orders.

Finally, there are only two points of real consequence on which it is worth while concentrating the influence of the Press: one is to secure the largest possible vote for aeronautics next year and the other is to encourage the backing of our designers by adequate private capital so that they may be evolving the foundations of the firm's good fortune in the meantime. Designing is a slow process when thorough, and the firm that would succeed must give its designers time to *evolve*, not merely guess, the best types of machines, and they must not give up if the first fails to be perfect.



FLYING AT DUSK AT HENDON.—Mr. Sydney Pickles taking a late turn on the Caudron biplane.

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Italy and British Machines.

Nothing could better illustrate the argument embodied in the preceding remarks, than the state of affairs in Italy just now, as it is, pictured to us by the British and Colonial Aeroplane Co. From this enterprising firm we learn that they have been receiving, of late, successive orders for "Bristols" from the Italian War Office, last week's order being for nine monoplanes. These orders have been placed on the advice of the officers and technical advisers of the Italian War Office and the number purchased has, of course, been strictly limited to the funds at the disposal of the Government for the purpose. Now, however, a national patriotic fund is being raised to supplement the exchequer and the sum available already amounts to between £80,000 and £100,000. The National Committee asked their War Office to settle on the types of machines to be purchased, and the result of that decision has been that the National Committee have commenced upon the realisation of their programme by ordering twenty-eight 80-h.p. Bristol monoplanes!

That, we may concede, is something like an order, and it is, or should be, evidence enough for anyone to clinch our argument that it is the money wherewith to pay the bill that it is first of all necessary to put into the

Government's pocket, and that enterprising firms—like the Bristol Company, for instance—can be trusted to look after the business of securing their share of the orders by building a type of machine that meets the requirements of those who want to buy.

There is yet another interesting aspect of the Italian case—namely, that the Bristol machines are to be built in Italy under licence, so that, with the exception of the royalty which goes into the pockets of the shareholders, the British workman and the British allied trades don't receive one pennyworth of benefit. That is, of course, from the Italian standpoint, quite as it should be, and the expenditure of a similar amount of money on British aeronautics would be governed by the same principle. For the moment, the Government may be purchasing imported machines here and there for trial, but it is through firms who are making the necessary arrangements to manufacture in England forthwith that the orders for duplicate machines are placed, and this side of the problem is one that will, of course, come more and more into evidence in the future. The Italian Government bought from abroad—England, to wit—in the first instance, but they are taking very good care to see that the *bulk* of their *money* does not go out of the country.



MORE ENCOURAGEMENT FROM OUR READERS.

WE have not the least desire to harp upon the subject of "ourselves," but some of the letters we have received lately, really have thrown into relief in the most extraordinary way the interest that FLIGHT possesses, especially for those who are situated at a distance from the centre of things. The appreciation lies mainly in our endeavour to link them up with the common cause, and then enthusiasm spreads through both sexes and all ages, which is a little extraordinary because flight as a subject is a sufficiently specialised study in itself to have exercised, one would have thought, somewhat of an eliminating influence on the public at large. But, when some 25,000 people read a journal like FLIGHT, and we have very good reason to believe they do read it, there are good grounds for our assertion that the interest, in addition to being intense, is widespread.

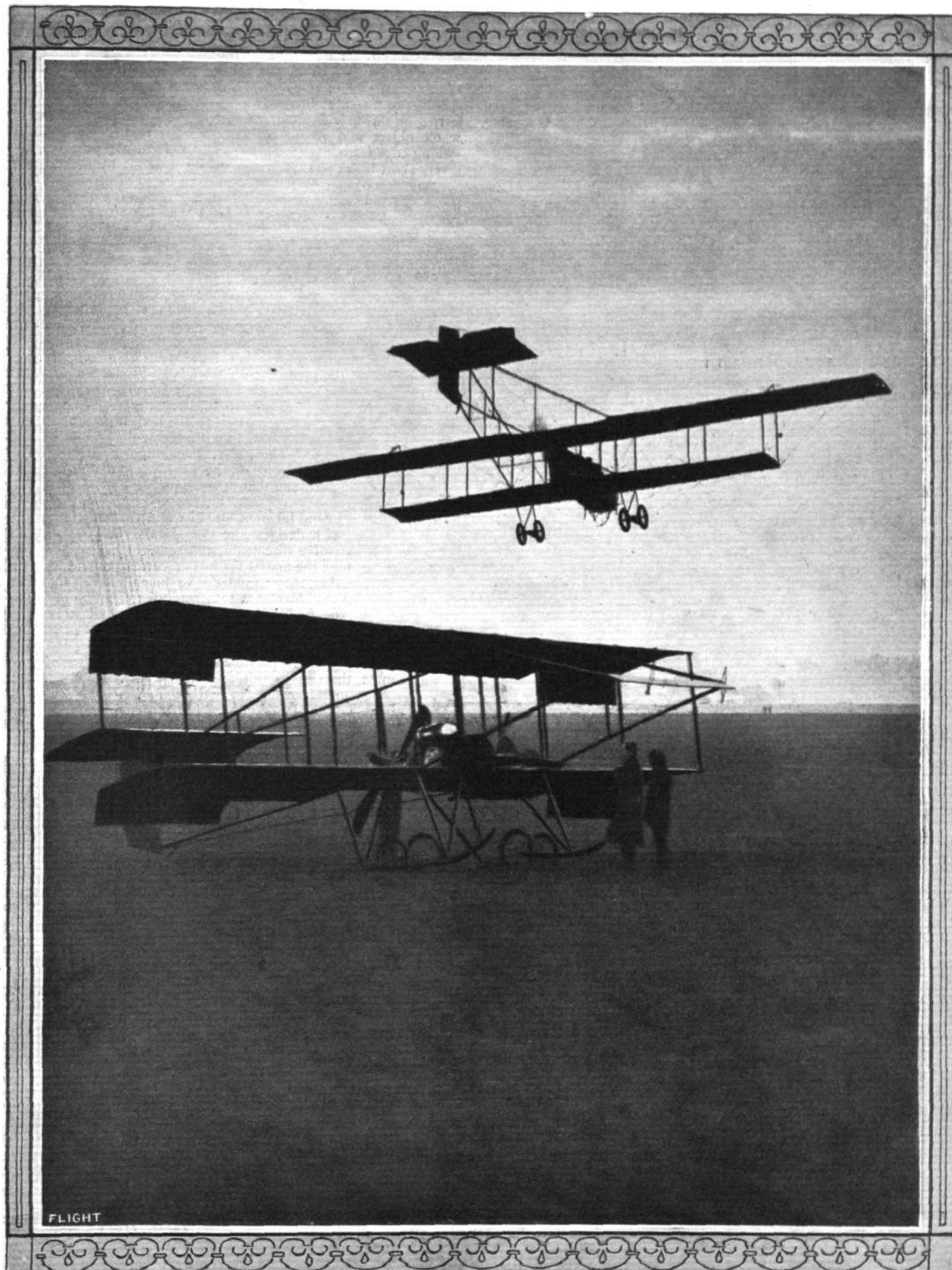
It is quite remarkable, too, to see the variety of aspects in which aviation makes a particular appeal to individuals, and we never quite realised how strangely diverse they are until we read some of the many encouraging letters that we have received over the increase in the price of our journal. One reader, for instance, takes the very broadminded point of view that everyone can at least give their interest as an encouragement to a science that is of such national importance, even if they are unable to help it forward in any other way. A lady, who writes to us in similar vein, says she has discovered that flying as a passenger is the "most health-giving and nerve-steadying pursuit possible," a most encouraging remark, as from her expressions of appreciation it will evidently need more than a rise in the price of FLIGHT to 3d. to shake the friendship that our correspondent feels towards the paper. Compare this with the only adverse communication we have received from a mere male, who says he is shocked at the treble price and that all the larger pictures in our last issue, including the two pages of wing sections have appeared before! We fear this reader is likely to get shocked more than once in his life if he is so ready to jump at silly conclusions that, on the face of them, are a little absurd.

A different note, and one with which we feel in real sympathy is expressed in a letter from one of our youthful readers, who points out that threepence a week is too big a drain on the pocket money to be contemplated with equanimity. We can remember the days when pocket money amounted to less than sixpence a week, and any suggestion of paying threepence thereof for one paper would have been turned down with scorn. We have no desire whatever to lose our younger readers—and it is mainly in their interest that we devote a section of FLIGHT every week exclusively to models—as we are firmly convinced that the study of aviation has an immense educational value. As a subject, it has just the vitality that is so effective in holding the mind's attention on the point at issue, and in this aspect it seems to us that a subscription to FLIGHT on behalf of the younger members of the family is well worthy of the consideration of parents. Further, we believe that those of

our youthful readers who have hitherto bought FLIGHT with their own money might reasonably lay the altered circumstances before the powers at home, with every prospect of a favourable issue. We do not say this without reason, for among the letters to which we have referred is one from a father, who, in writing a note of encouragement and appreciation, says that while sending FLIGHT regularly to one of his boys abroad, he has come to take an intense interest in the paper himself, although formerly he felt no particular concern in the subject. So, it may be that the sons will be conferring a blessing in disguise on their fathers if they get them to subscribe to FLIGHT on their behalf, for there is nothing in this world that has a higher value than a new interest in life.

Thinking the matter over, it has occurred to us that one way of showing our appreciation of the situation presented by the young idea who has to buy FLIGHT out of his pocket money, would be to put it in his way to win enough to pay for his subscription. It stands to reason that only those who are really interested in their subject will continue to subscribe, and it follows that those who are interested will find a real pleasure in discussing the points to which they have particularly devoted their attention. We get many letters about models from our younger readers, but the communications and subjects might with advantage in many instances be more carefully prepared and studied, so in order to encourage correspondents to take trouble we have decided to award a little prize of merit when, in our opinion, a communication is distinctly above the average. Further details of this scheme will be found on page 979.

We can scarcely follow the same procedure with our older readers, but we take this opportunity, nevertheless, of expressing our appreciation of the interest that is shown by those who do take the trouble to contribute articles and correspondence. A truth that is often overlooked by those who study intellectual subjects is that nothing is really known until it can be expressed, and that merit in the expression lies in the degree to which the writer's point of view is communicated to the reader's intelligence. Many people know things well enough to be able to make use of them personally in the ordinary way of business, but they make a mistake when they suppose that this is all there is to know on the subject. Let them sit down for a few minutes and try to communicate their information to others in a clearly and concisely worded note, and they will be surprised at the variety and number of unsuspected aspects that their time-worn knowledge now presents. If you hold an opinion, set it down in writing; it is the surest way of either confirming you or disturbing you in your point of view. Moreover, an opinion clearly expressed is always interesting to others; wherefore, it is an act of friendliness towards the community with an interest in common, as the world of flight, to publish what you have written. That it takes a little trouble to write is of no consequence, seeing that it may further a common cause and that, in any case, conscientious labour brings its own award.



A MISTY EVENING AT HENDON.—Mr. Claude Grahame-White flying a Henry Farman in the rising haze at Hendon Aerodrome. On the ground is seen the Grahame-White biplane.

THE HANDLEY PAGE MONOPLANE.

AMONG the disappointments of the Military Trials was the limited opportunity that they afforded for appreciating the proper merit of the Handley Page monoplane. The machine entered therein was one specially built to satisfy the conditions, as the firm's standard model, which had been flying quite well before the trials, was not suited to the requirements laid down by the tests. The trials machine, however, was unfortunately delayed in construction, and when at length it "got going" towards the end of the trials, a forced landing down wind damaged a wing, which put it out of action again for the few remaining days of the event. We thought then, and we think now, that it was particularly unfortunate that the machine in question was thus prevented, by a series of natural handicaps that are incidental to business of this sort, from performing in public and especially under the eye of the military observer, for although we have no cause to express an opinion one way or the other as to the probable military qualities of the machine, the fact remains that Mr. Handley Page has been bold enough to design on lines that are out of the ordinary, and has had the courage of his convictions to keep at work on the same main principle from the day that he first went into the industry.

Moreover, that principle is related to the problem of stability inherent in design, and the question of natural security in the air is one of even greater importance to aviation at large than is the evolution of a military aeroplane to the nation in particular. For these reasons, therefore, we consider that there is good cause to regard the virtual absence of the H.P. monoplane from the military trials both as a disappointment and a misfortune.

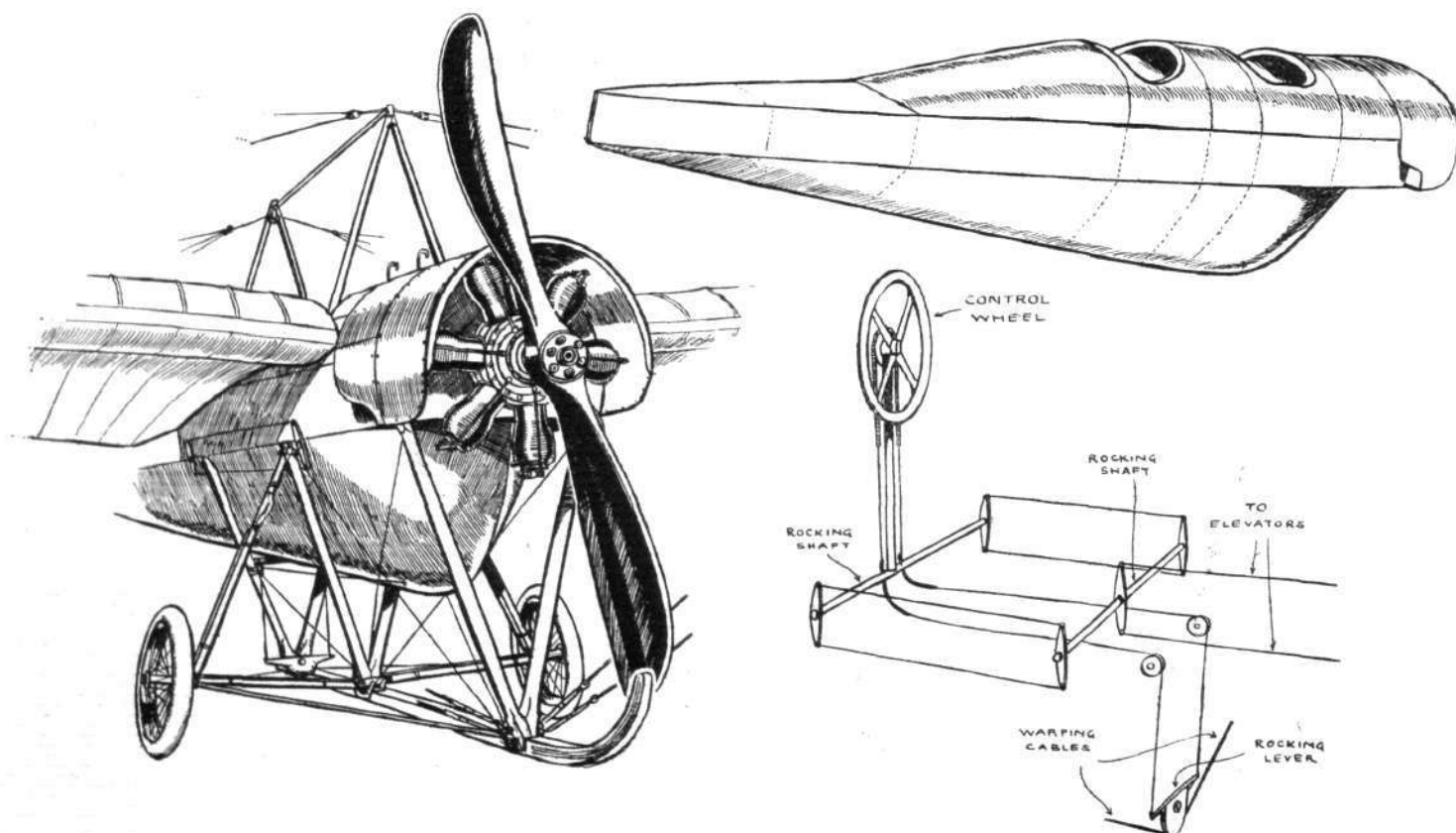
Since that event, however, the latest machine, which we illustrate by a series of photographs, sketches, and scale drawings, has been doing extremely good work at Hendon, whither the firm has transferred its flying headquarters from the secluded aerodrome at Barking where the pioneer days were spent. Probably all our readers are aware, and if they were not hitherto aware they will at least have observed already from a mere glance at the pictures, that the characteristic feature of the Handley Page monoplane is the crescent-shaped plan form of the leading edge of its wings. The crescent plan form is, however, not everything, for there are two other characteristics less easily illustrated in general views, which are of even greater importance to the stability, that it is the object of the design to obtain. One of these is the reversal of curvature of the wing section as it approaches the trailing edge, and the other is the graded camber from shoulder to tip, whereby the wing section measures some seven or eight inches deep where it is adjacent to the

body, while the positive camber is entirely washed out at the upturned extremities.

These features—the crescent entering edge, the reversed curvature of the trailing edge, and the graded camber of the wing section from shoulder to tip—are all associated with the general problem of conferring on this machine a degree of inherent stability, which is its whole object and *raison d'être*. The reversed curvature of the trailing edge introduces the principle of the fore and aft dihedral on a very short base; that is to say, while it tends to neutralise the retrogression of the centre of pressure, its lack of fore and aft length probably handicaps it in damping out any oscillation that has once commenced. Although it is claimed that the plane, as such, is naturally stable, the Handley Page monoplane in particular is fitted with a tail in order to enhance the natural damping tendency and to provide the pilot with adequate means of exaggerating the effect when necessary.

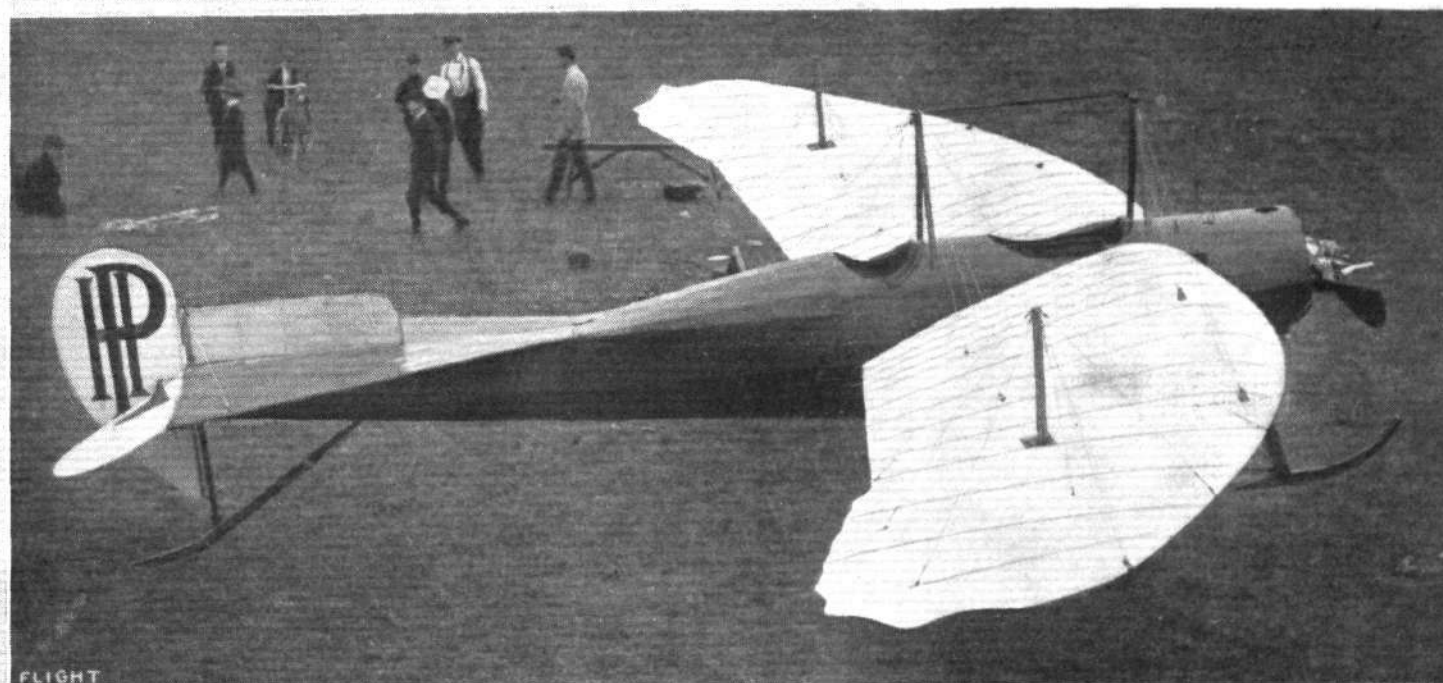
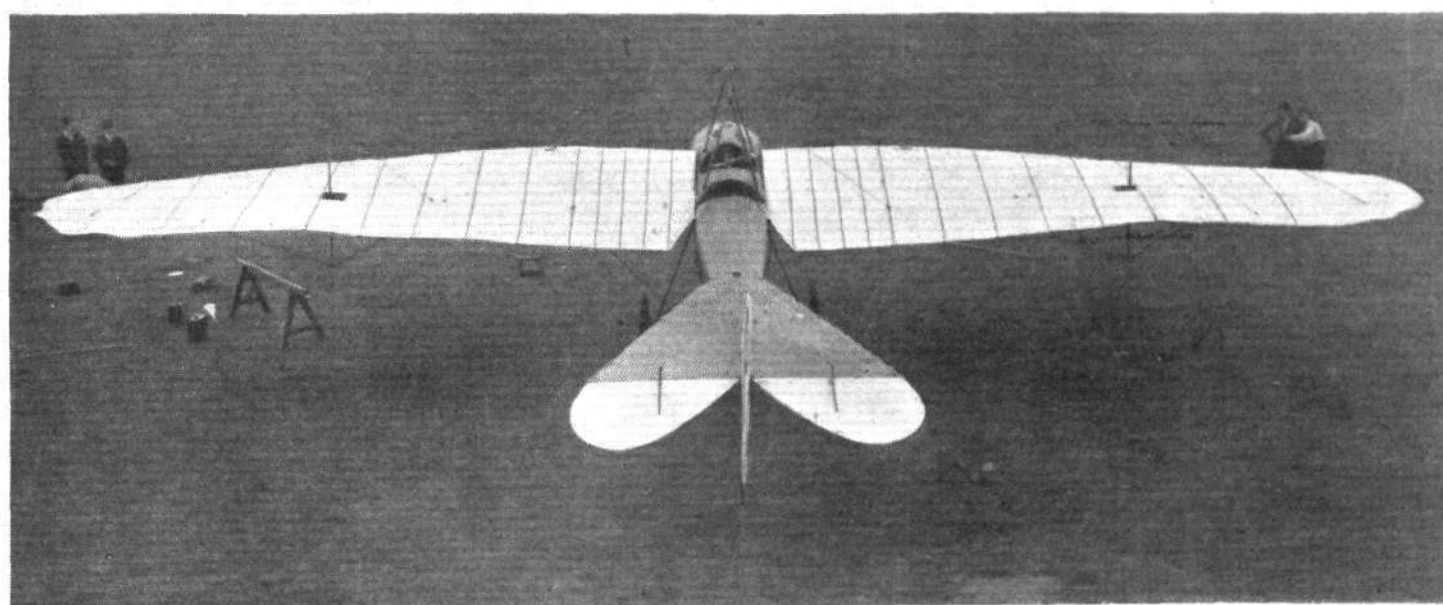
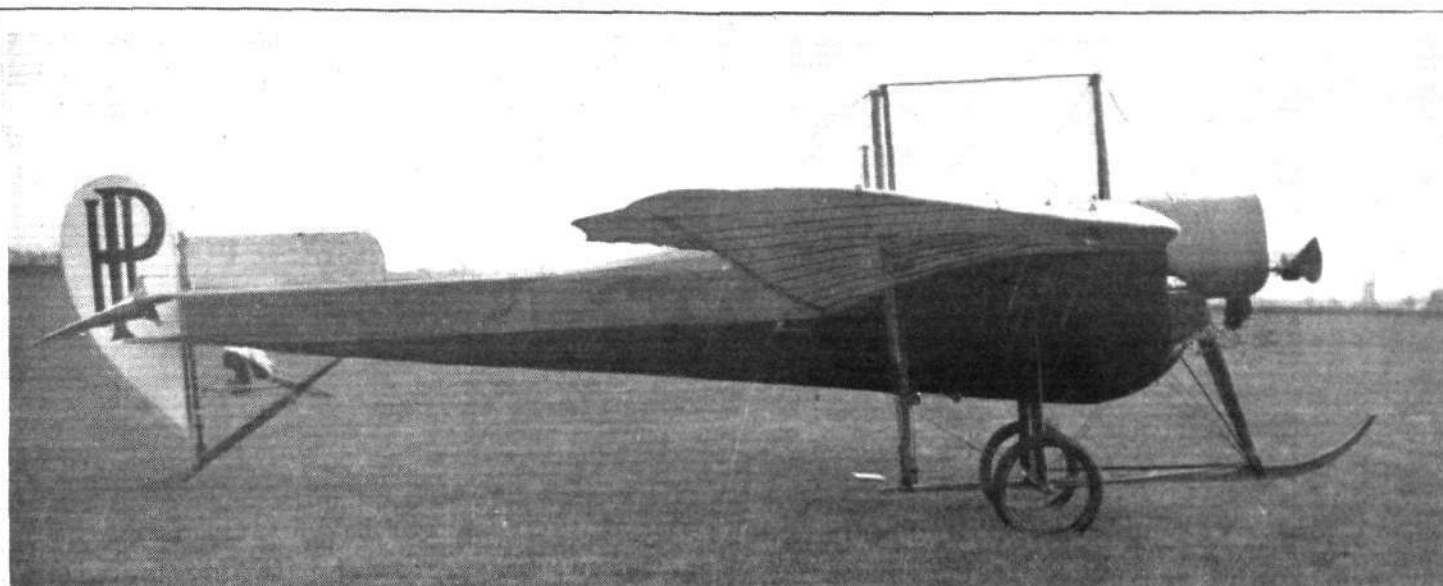
The lateral stability of the machine is associated with the graded loading and the retreated tip, and on this point Mr. Handley Page has a theory of his own, which we explained in FLIGHT some time ago, but of which we give another brief outline now for the benefit of our readers who have not studied the question previously. His argument is that the graded loading tends to produce a diagonally outward flow of the relative air stream under the wing tips. The effect of a side gust, according to the designer, is to change this diagonal outflow into a flow parallel to the body and so to diminish the relative velocity as illustrated by the vector thus produced in the triangle of velocities. Thus, Mr. Page argues that instead of increasing the relative velocity on the near wing that it is, in fact, reduced by a side gust, and that in consequence the near wing does not tend to tilt up.

The subject of lateral inherent stability and the theories properly to be associated with designs like the Handley Page is one that lends itself to extensive discussion, and some of our readers might with advantage take the matter up in our correspondence columns, for we feel sure that they would derive much interest therefrom. We are none too certain that a satisfactory explanation of the true theory in this matter has yet been advanced, and it is indeed unlikely that it should be until we know more about the nature and dimensions of a gust. For the time being, however, it is good mental exercise to picture possible effects on a broad scale, and to devise simple theories to suit the cases. Mr. Handley Page's theory belongs to this category, and should serve as a basis on which to open a discussion. Particularly, for example, would it be



The Handley Page monoplane, showing, on the left, general view of the chassis, &c.; top right, diagrammatic view of the fuselage; and, beneath, diagram of controls, the rudder bar not being shown.

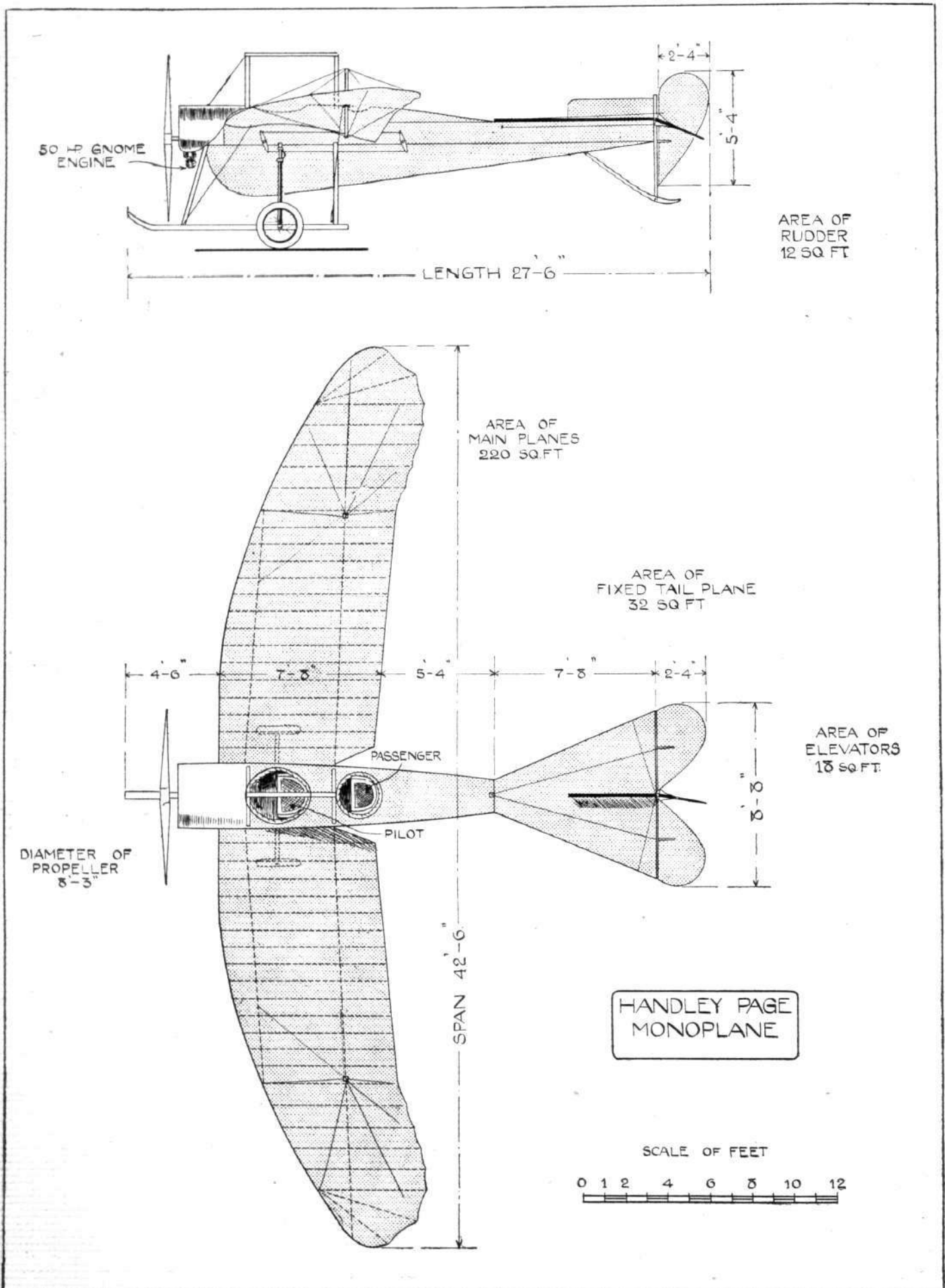
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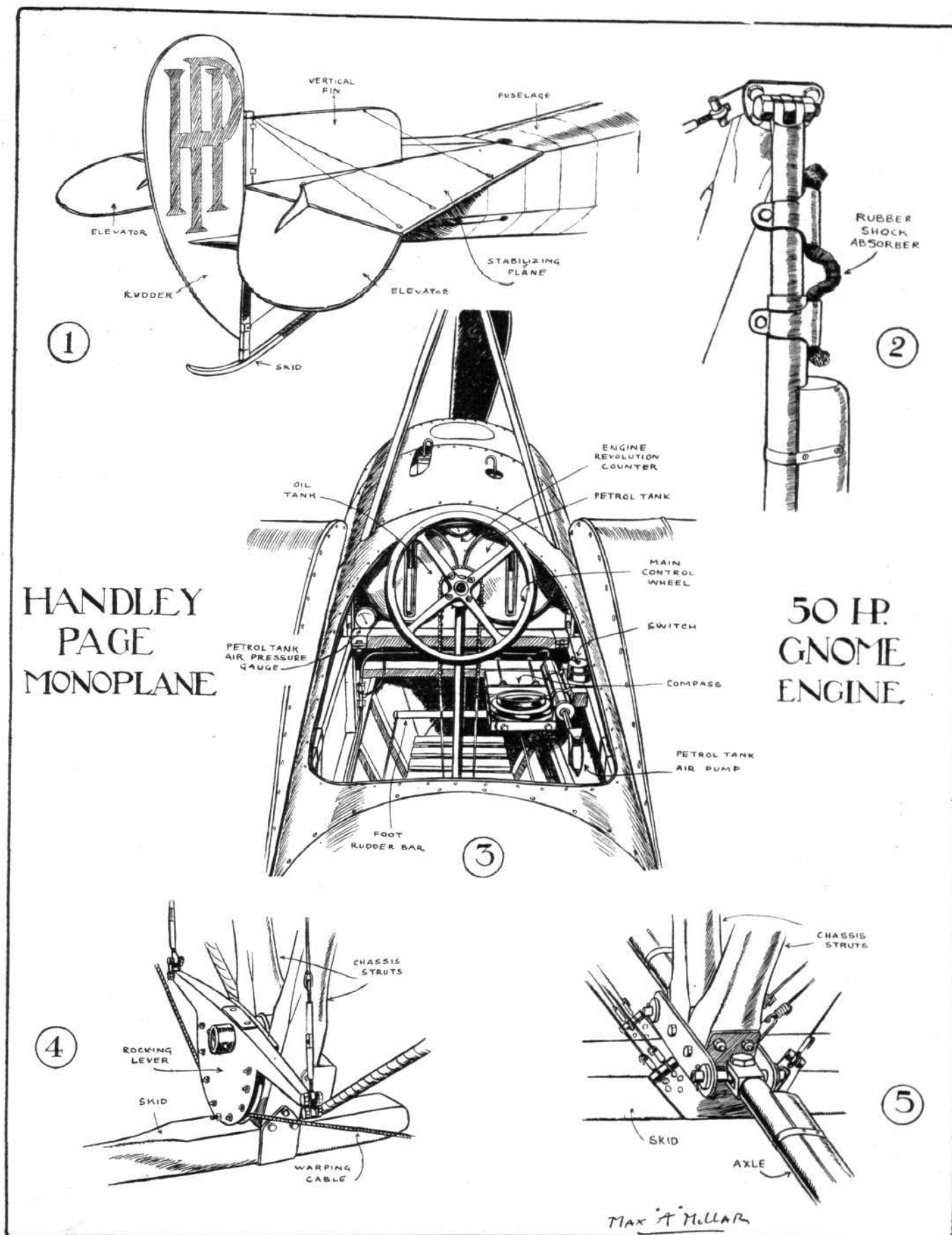
FLIGHT

The Handley Page monoplane.
963

"Flight" Copyright.



THE HANDLEY PAGE MONOPLANE.—Plan and elevation to scale.



"Flight" Copyright.

HANDLEY PAGE MONOPLANE.—1. General view of empennage. 2. Rebound shock-absorber on chassis vertical wheel struts. 3. General view of pilot's cockpit. 4. Warping gear details on chassis. 5. Fitting of axles to chassis-strut joints.

interesting to consider the influence of the change of effective chord length on the argument in question, for it will be obvious that when the relative wind blows obliquely across a wing, it suffers a different downward acceleration as compared with the conditions obtaining when it flows straight along the normal chord. It might well be, for instance, that a change of direction from an oblique to a fore and aft direction might actually increase the downward acceleration, and, therefore, the lift, in spite of the fact that the new velocity vector in the horizontal plane has been diminished. These considerations apart, however, the fact remains that many of those who have especially studied the question of inherent stability have come round to the view that the crescent entry and graded loading, carried to the point of a negative angle at the tips, are the principles that offer the greatest opportunities for a successful issue to their practical application. Jose Weiss was one of the first to experiment in this country with bird-like models—and you have only to look at a bird to see that the crescent entry, fixed shoulder and thin tip are characteristic features of many natural wings in flight—with which he attained a measure of success that has never received the recognition that is its due. Gordon England, as readers of FLIGHT will recollect, was the very courageous pilot who ventured to glide in these small man-carriers, which were devoid of all sort of mechanical control. Etrich is another well-known name associated with monoplane construction along these lines; while Dunne, who claims to have started his experiments with models of this description before anyone, is convinced that the true solution of inherent stability in wings that are not under muscular control lies in a modification of designs such as the Handley Page, whereby the entering edge is caused to dip more and more as it approaches the tip of the wing. Especial interest attaches to this idea, in view of the observations of Dr. Hankin, whose articles on bird flight will be fresh in the minds of our readers. It will be remembered that Dr. Hankin put it on record that the birds under his observation in India were in the habit of making stabilising and directional movements by turning down the leading edges of their wings. Wishing to confirm his observation by anatomical evidence of its possibility, he made a dissection, from which he found that muscular arrangement of birds' wings not only permitted of the movement described but were incapable of making any other movement that could possibly be mistaken for it. Arguing on broad lines, therefore, one may say of the Dunne that it is a wing with a permanently down-turned extremity in order to secure a constant "attitude" of stability so that it may be safe in emergency at the expense of, perhaps, some efficiency in normal flight.



MILITARY FLYING IN ROUMANIA.

THE Roumanian Government are going ahead with the equipment of their army with aeroplanes, and their latest purchases are a number of 80-h.p. Bristol monoplanes. On one of them the other day, Lieut. Protopopescu made a flight of upwards of an hour to the south of Bucharest, then returning to his starting point. He had made his first flight on the machine only three days previously.

Roumania is a splendid country for aviation as it is dead level and unobstructed by trees. The fields are, however, cut up by small

It is hardly necessary for us to add any lengthy remarks on constructive detail of the H.P. monoplane, seeing that what is specially interesting forms the subject of sketches that are far clearer than words, while points that have not been sketched are not readily to be otherwise described. The whole design lends itself to a substantial and straightforward construction, the only difficult matter being the building of the first pair of new wings, which, as they have no two ribs alike, does involve some considerable labour and expense in the first instance. Once correctly proportioned, however, there is no difficulty in reproducing duplicates in the ordinary way. It is interesting to observe that the grading of the camber of the wings is effected almost entirely on the top surface, which permits of an exceptionally deep front spar and, at the same time, facilitates a gradual tapering thereof towards the extremities so that it can be built more in accordance with the principles of cantilever construction than is possible with a wing section uniform throughout and shallow enough at that.

Ash is the principal timber used in the construction, and the backbone of the machine, which is built of it, consists of a rectangular lattice girder that is entirely enclosed by fabric. Externally, this fuselage does not show its rectangular section, as the fabric is carried to a lower boom so as to provide a V section keel, and is also stretched over light formers above the girder so as to provide a kind of turtle-back deck.

Now that our readers have had an opportunity of studying the details of the machine more closely and of realising from the explanations of the designer himself what constitutes its *raison d'être* in the world of flight, they will doubtless follow with especial interest its progress as recorded in the ordinary course of events in the news columns of FLIGHT, and they will doubtless feel with us that the firm well deserves success after its strenuous efforts to "get there." These efforts and the great expense that they have inevitably involved have been well worth while in any case. It is the price paid by the pioneer, and although the man who foots the bill may get little credit for his sporting determination to win, he can at least lay the flattering unction to his soul that he is none the worse off for the lack of it—if a material award does come later it will be doubly sweet on that account. Such quiet persistence is of the kind of which the flight industry is in the greatest need. Continual effort, and still more effort on the top of that, is the only thing that will put England uppermost in the air and it is the men who keep on doing it without worrying about immediate results who are building up to a pinnacle of future supremacy that we only trust they may live to see and enjoy.



dykes, so that great care has to be taken when landing or rolling and they tend to make the atmosphere disturbed at times. Being of very plucky character and able to keep a cool head in an emergency the Roumanians make splendid flyers, and should they be drawn into the war they will doubtless make full use of the new arm. Apart from the Bristol machines the Roumanian Army, at its school at Bucharest, has several Henry Farman machines, a couple of Blériots, a Nieuport and a Morane.



BRISTOLS IN ROUMANIA.—A snapshot at the Bucharest Military Aerodrome. Standing in front of the 80-h.p. Bristol monoplane, from right to left: Lieut. Protopopescu (who on Thursday week, after only three days' tuition, made a flight of an hour, getting up to 2,000 ft.), another Lieutenant (who acted as observer in the official trials), Mr. C. H. Pixton, Major Macree (in command of the Flying Corps), beside whom is a Lieutenant (who is now being taught by Lieut. Protopopescu), and the two mechanics who accompanied Mr. Pixton to Roumania.

"FLIGHT" MAPS WITH TANGENT BORDERS.

IN the centre of this issue is a double page map that is characterised by a border consisting of a uniformly divided scale; the scale is numbered from each end—that is to say, there is a zero at every corner of the map. Divisions on the vertical and on the horizontal scales are equal in length, consequently the ratio of any numeral on one scale to another numeral on the adjacent scale (both measured from the same zero) represents the tangent of the angle of the line forming the hypotenuse of the triangle to which two scales respectively form the perpendicular side and the base.

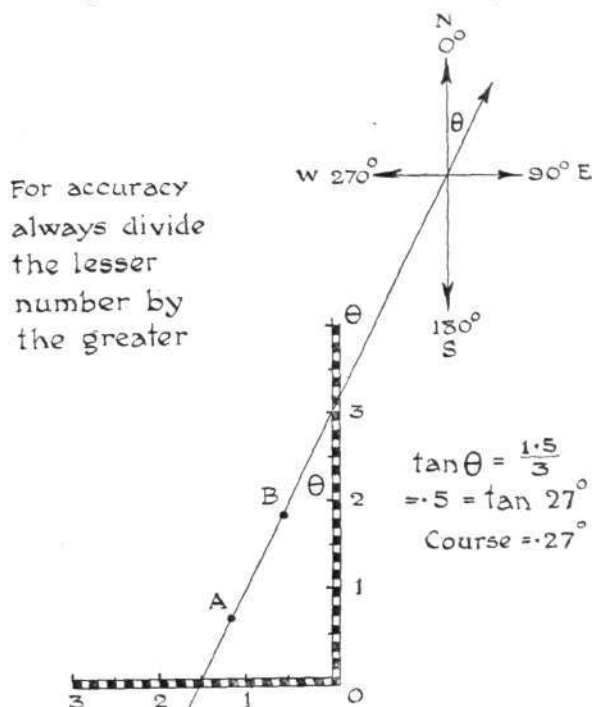
The object of the border is to serve as a means of approximately ascertaining the flight course between any two points on the map, without the use of a protractor.

In the present instance, the border is arranged coincident with the geographical north, consequently an allowance for the magnetic variation must be made in order to obtain the compass course.

Diagrams herewith illustrate the use of the tangent border in three typical cases, in each of which it is required to fly from A to B.

The first operation in using the map is to draw a line (which may be done by stretching a piece of cotton if it is desired not to mark the map) between the point of departure and the point of destination, and to extend the line both ways until it intercepts the borders of the map.

In the first case illustrated by the diagram, the line between the points of departure A and destination B intersects adjacent borders,



the ratios of the numbers on the scales of which thus give a direct tangent.

It is possible, however, for the line, AB, to pass through opposite borders, in which case the lesser number is subtracted from the greater, and their difference, in ratio to the full length of the base, gives the required tangent. The diagram illustrates the geometry of the case.

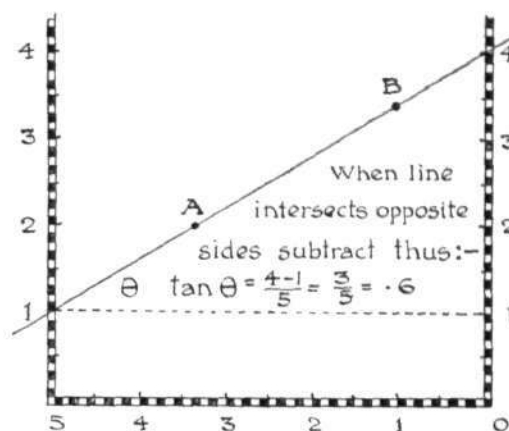
For the sake of accuracy, the lesser number on the scale should always be divided by the greater, because the rate of increase of the tangents of angles below 45° is less rapid than those of larger angles, and tangents of high numerical value would, therefore, be liable to produce inaccurate results. In the third diagram is an illustration showing this point.

It is essential, in order to avoid error, to at least mentally picture the triangle for which the calculation has been made, so as to be perfectly sure of the angle that has been ascertained. The angle that results from the calculation is always opposite to the border that provides the numerator of the fraction.

Having ascertained the tangent, the corresponding degree is obtained from the table that will be found on the map itself. It is quite a small table, and only gives every other degree from 1 to 45, but the object of the map in question is mainly to illustrate the principle, and in any case the size of the map that it is alone possible to publish in our pages only permits of moderate accuracy. The principle of the tangent border, however, can be applied to any map, and we shall be pleased to make a quotation for the supply

of specially mounted maps with tangent borders to those who are interested in them.

As for the map itself with which we illustrate this idea, it is presented for what it is worth as an attempt to produce a useful flight diagram map in black and white. For many years, there has been much discussion about special maps for those who journey by air, but it is often forgotten that map-making is one of the most expensive undertakings related to the printing art, and we are

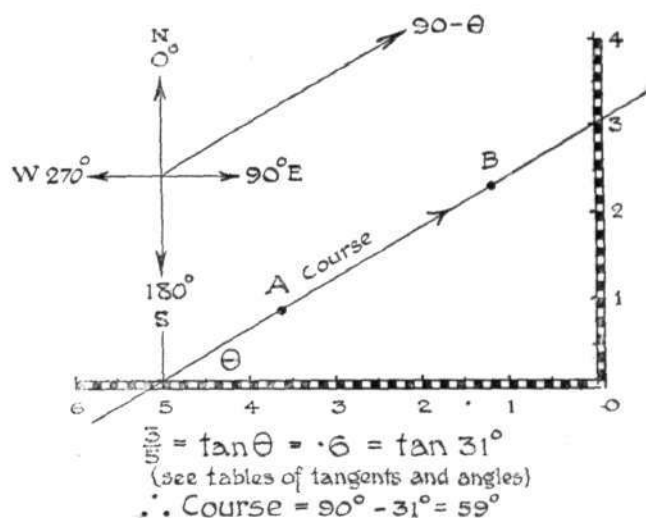


inclined to believe that if aviators have too many requirements in cartography that nothing of any considerable importance will be produced for them at all.

Maps, to be useful, must be generally useful, and especially is this so in connection with military aviation. It is difficult enough for an army officer to deal intelligently with the maps that exist, and there will be small willingness to complicate the situation still further by encouraging one arm of the service—and that the one most likely to be associated with geographical reconnaissance—to use special maps all to itself, which no one else understands. Doubtless, such maps will be forthcoming for many districts, but it is surely rather essential that the whole country, and not a small portion only, should be thus brought into view. It is for this reason that we have always favoured the use of the Government Ordnance Survey maps for detail purposes, as they are available for all districts and their accuracy is the foundation on which all other maps are based.

But, there may be considerable utility in the occasional preparation of diagram or key maps for special purposes, in which case there is an obvious advantage in simplifying the art of portraying different things in such a way as to bring the production of a map readily within the scope of ordinary and economical printing. In a word, by the use of black and white, to show anything that it is of any consequence to see.

In our map of London and Around, we have indicated certain principal permanent land marks in an unmistakable manner. There

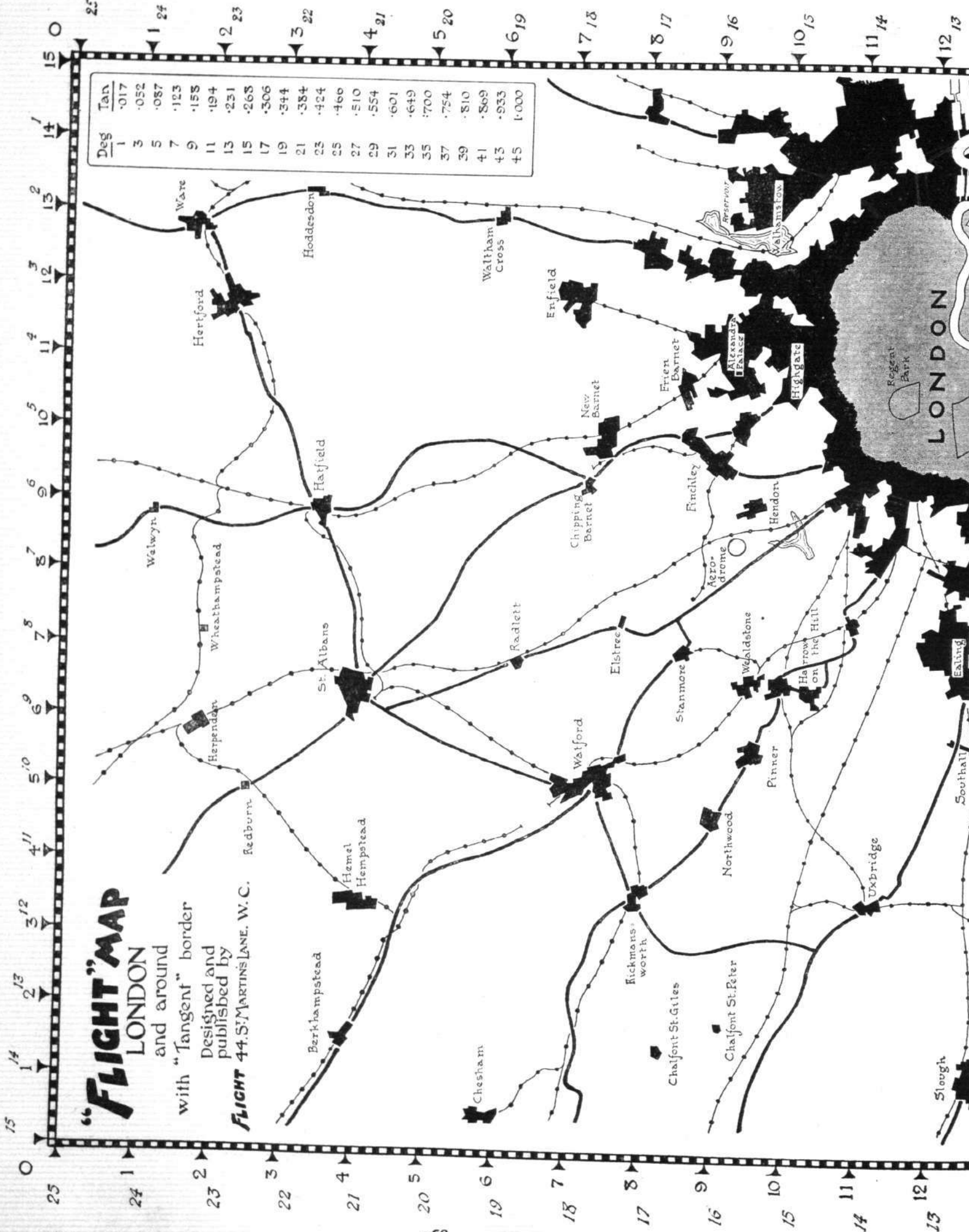


are the towns as black patches, the roads as black lines, the railways as thinner lines with dots at intervals, and the water areas with their multiple fine-line contours. We have not sought to show anything else on the map for the reason that if a map of this sort is to be of any use from the pilot's point of view it should partially

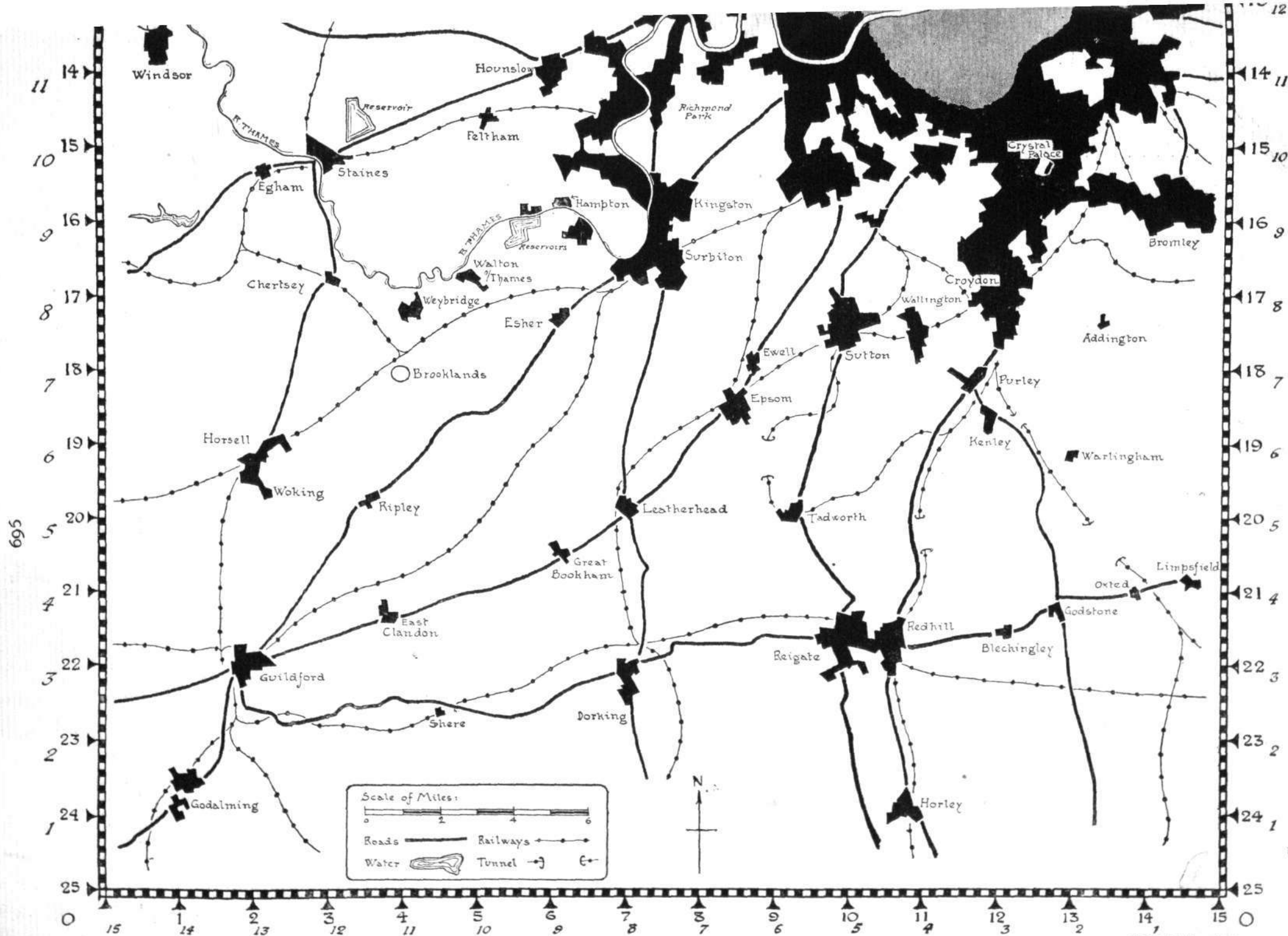
FLIGHT

Deg	Tan
1	.017
3	.052
5	.087
7	.123
9	.158
11	.194
13	.231
15	.268
17	.306
19	.344
21	.384
23	.424
25	.466
27	.510
29	.554
31	.601
33	.649
35	.700
37	.754
39	.810
41	.869
43	.933
45	1.000

"FLIGHT" MAP
LONDON
and around
with "tangent" border
Designed and
published by
FLIGHT 44, ST. MARTIN'S LANE, W. C.



OCTOBER 26, 1912.



"Flight" Copyright.

This map has a uniformly divided border, such that a line drawn between any two points on the map and intersecting the border provides two numerals, the ratio of which is the tangent of the angle of the slope of the line, and, therefore, represents the compass course when allowance has been made for magnetic variation. A table inset in the map gives the angles corresponding to the tangents. See text on another page for full explanation.

FLIGHT

be a work of his own making—that is to say, we have left as much as possible of the map blank, so that any pilot who cares to use a FLIGHT key-map as a kind of note book, may insert thereon any landing places or special objects of which he personally is fully acquainted.

Indeed, it seems to us a little questionable whether anyone else can provide information of this sort. The other day we happened to be standing on the edge of the South Downs looking out over a particularly expansive stretch of country of very variegated character. It struck us then how singularly difficult, even on a map comprising no more than the area in view, it would be to visualise by signs the significant differences between one plot of ground and another as they would, for instance, appear to the eye of an aviator about to seek a place whereon to land.

Copies of the FLIGHT map in this issue, mounted on linen or cards, can be supplied at 1s. each to any of our readers who write

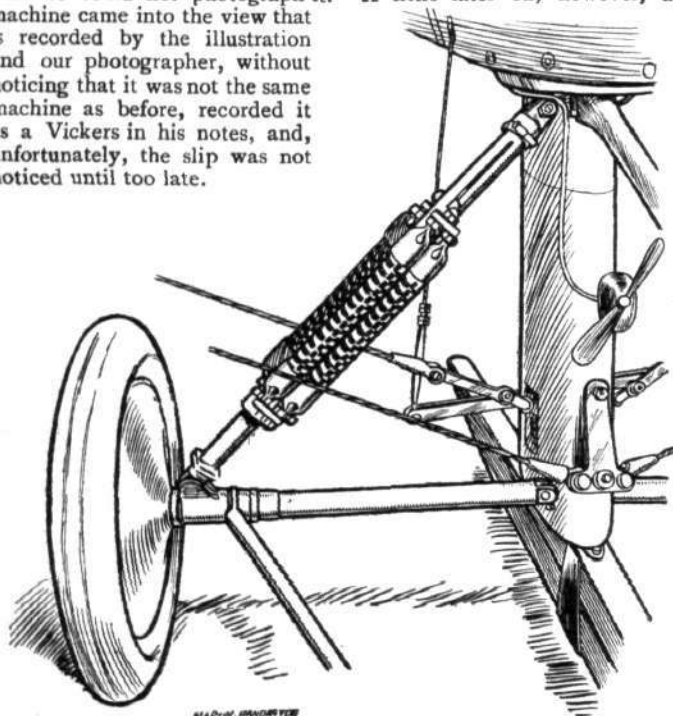
for them. We can also supply Government Ordnance Survey maps similarly mounted for any district, and we make a special feature of mounting these maps for rolling instead of folding, which is a much more convenient way of carrying them for ready reference.

Table of Degrees and Tangents from 1° to 45°.

°	Tan.	°	Tan.	°	Tan.	°	Tan.	°	Tan.
1	017	10	176	19	344	28	532	37	754
2	035	11	194	20	364	29	554	38	781
3	052	12	213	21	384	30	577	39	810
4	070	13	231	22	404	31	601	40	839
5	087	14	249	23	424	32	625	41	869
6	105	15	268	24	445	33	649	42	900
7	123	16	287	25	466	34	675	43	933
8	141	17	306	26	488	35	700	44	966
9	158	18	325	27	510	36	727	45	1000

THE MARTIN-HANDASYDE AT BROOKLANDS.

THAT very striking full-page picture in last week's issue of FLIGHT, showing a monoplane crossing above the winning post at Brooklands during the course of motor cycle racing on the track, was a Martin-Handasyde machine, and we tender our apologies to this firm and to Messrs. Vickers, Ltd., whose name was mentioned in the inscription, for the mistake. As a matter of fact, our photographer, who happened to be taking pictures of the motor racing for our sister journal the *Auto.*, had seen a Vickers monoplane pass several times above his head, but so placed with respect to the light that he could not photograph it. A little later on, however, a machine came into the view that is recorded by the illustration and our photographer, without noticing that it was not the same machine as before, recorded it as a Vickers in his notes, and, unfortunately, the slip was not noticed until too late.

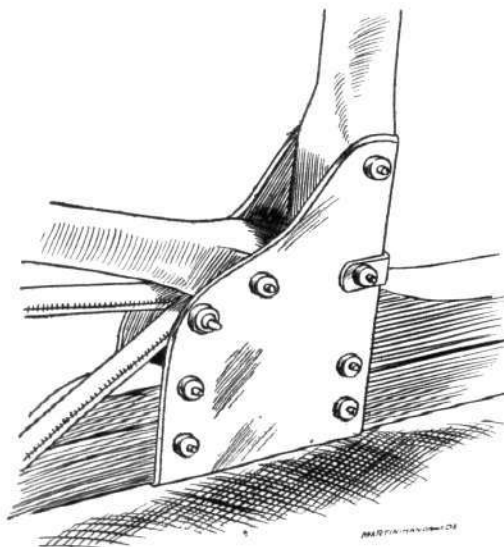


The shock-absorbing device (on the left) on the Martin-Handasyde monoplane, showing the base of the central rigid mast to which the warp-wires are attached. The construction of the under-carriage is such that this mast is protected from landing shocks, which do not, therefore, derange any of the vital cable connections. On the right is a sketch illustrating the attachment of the supporting-struts to the front end of the skid, an example of simple yet sound construction.

The Martin-Handasyde monoplanes have been flying exceedingly well again down at Brooklands, as they did before the Military Trials, and it was just one of those several disappointments of the month on Salisbury Plain that, at the very time when the eyes of the world of flight were ready to take a particular interest in everything British, the Martin-Handasyde monoplane, itself one of the best of British constructions, should have been hopelessly let down by the chronic weakness of a French engine. There is no doubt that the Martin-Handasyde machine is deserving of the serious consideration of anyone who is in a position to purchase aeroplanes, for not only is it beautifully constructed but it is a splendid machine in the air. Gordon Bell, who came over from France especially to fly the Martin-Handasyde in the Military Trials, did so more because the machine was a pleasure to handle than from any other reason, and on the few occasions when the engine permitted him to stay off the ground, his flying was superb. In the wind tests he led the field under conditions that were distinctly courageous, and his fine performance inspired others to

successful simulation when they might have been less anxious to act the pioneer.

Among monoplanes it is a machine of comparatively large area, and among flying machines of all types it is easily one of the most graceful and beautiful objects to see in flight. More important than these facts is the interest that attaches to the machine as an engineering structure, especially in these days of the ban on monoplanes. The trussing of the wing spars is characterised by the presence of king posts, which are absent in a similar capacity from any other monoplane with which we are familiar. The object of a king post is to enable the lift wires to be carried at a reasonable slope so that they do not impose a big compression strain on the spars, and another point of importance on the Martin-Handasyde machines is that the wires in question are anchored to the foot of a very substantial mast, which is carried vertically through the body and forms the apex of the overhead *cabane*. The divided axle of



the landing chassis is hinged to the mast, which is protected by a skid, and a very well thought out rubber spring suspension, having an abutment against the floor of the body, also relieves the mast of shock. The object of this arrangement is to avoid attaching vital wires like the warp wires to members of the under-carriage that are likely to get bumped about or strained against the ground when landing. It is a necessity of monoplane design that the warp wire attachments should project below the level of the body work of the machine and thus be exposed to accidental damage, so it is all the more credit to the designers of the Martin-Handasyde that they should have recognised this natural limitation and have produced a sound engineering solution to the problem. We give this week a couple of detail sketches of the Martin-Handasyde machine entered for the Military Trials, which were made by our artist at Salisbury Plain, but have not hitherto been published. They will serve to accompany, if we may use the expression, the excellent photograph of the machine in flight over Brooklands that was published on page 933 of our last issue.

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

Aviators' Certificates.

THE following Aviators' Certificates have been granted.

335. Capt. Robert Boger, R.E. (Bristol biplane, Bristol School, Brooklands).
336. Lieut. A. M. Read (Northamptonshire Regt.), (Bristol biplane, Bristol School, Brooklands).
337. Arthur Payze (Bristol biplane, Bristol School, Brooklands).
338. Lieut. Frederick Ernest Styles (Royal Munster Fusiliers), (Bristol biplane, Bristol School, Brooklands).
339. Norman Channing Spratt (Deperdussin monoplane, Deperdussin School, Hendon).
340. Capt. J. A. Chamier (33rd Punjabis), (Caudron biplane, Ewen School, Hendon).
341. 2nd Lieut. G. F. Pretymann (1st Somersetshire Light Infantry), (Bristol biplane, Bristol School, Brooklands).
342. Lieut. E. L. Conran (2nd County London Yeomanry), (Caudron biplane, Ewen School, Hendon).
343. Lieut. F. G. Small (Connaught Rangers), Grahame-White biplane, Grahame-White School, Hendon).
344. Henry Howard James (Caudron biplane, Ewen School, Hendon).
345. Com. Alan Montagu Yeats Brown, R.N. (Grahame-White biplane, Grahame-White School, Hendon).

Public Safety and Accidents Investigation Committee.

A meeting of the Committee was held on Tuesday, October 22nd, 1912, at 4 p.m., when there were present:—Col. H. C. L. Holden, C.B., F.R.S., in the Chair, Mr. G. B. Cockburn, Mr. J. H. Ledebour, Mr. W. O. Manning, Mr. F. K. McClean, Mr. Alec Ogilvie, Maj.-Gen. R. M. Ruck, C.B., R.E. In attendance, Mr. R. L. Charteris and the Secretary.

Official Representatives.—The following official representatives were appointed:—

Eastchurch ... Lieut. R. Gregory, R.N.
Yorkshire ... Mr. F. Strickland.

Hitchin Accident.—The Committee proceeded to enquire into the fatal accident to Capt. P. Hamilton and Lieut. A. Wyness-Stuart as Graveley, near Hitchin, on September 6th, 1912. Lieut. J. C. Porte, R.N., and Mr. Koolhaven, of the British Deperdussin Aeroplane Co., attended before the Committee and gave evidence on various points raised by the Committee. The enquiry was adjourned.

British Empire Michelin Cup No. 1.

The Competition for this year closes on Thursday, October 31st, 1912.

The winner of the prize of £500 for the year 1912 shall be the competitor who, on or before October 31st, 1912, shall have remained the longest time in the air on an aeroplane in one flight without touching the ground. The flights may only be made between the hours of sunrise and one hour after sunset, and in order to qualify for the prize the competitor must make a continuous flight of at least five hours.

The entrant, who must be the person operating the machine, must

be a British subject, flying on a British-made aeroplane, must hold an Aviator's Certificate, and must be duly entered on the Competitor's Register of the Royal Aero Club.

Rules and entry forms can be had on application to the Club.

Entries have been received as follows:—

Entrant.	Aeroplane.	Motor.
R. L. Charteris ...	Avro biplane ...	A.B.C.
S. F. Cody ...	Cody biplane ...	Green.
H. G. Hawker ...	Sopwith biplane ...	A.B.C.
Arthur Knight ...	Vickers monoplane ...	Vickers R.E.P.
I. G. Vaughan Fowler ...	Wright biplane ...	N.E.C.
F. P. Raynham ...	Avro biplane ...	Green.

The first attempt for this prize was made by H. G. Hawker on a Sopwith biplane on Wednesday last at Brooklands, who remained in the air for 3 hrs. 31 mins.

The following attempts have so far been made in the Competition:—

October 16	H. G. Hawker ...	Sopwith biplane	3 hrs. 31 mins.
" 21	" ...	"	2 " 40 "
" 22	" ...	"	3 " 30 "
" 22	F. P. Raynham	Avro biplane ...	3 " 48 "

The Gordon-Bennett Balloon Race.

The race for the Gordon-Bennett Aeronautical Cup will take place at Stuttgart on Sunday, the 27th inst., and the Royal Aero Club will be represented by Mr. J. de Francia in the balloon "Honey Moon," 80,000 c.f.

British Manufacturers Sub-Committee.

A meeting of the British Manufacturers Sub-Committee has been called for Wednesday, the 30th instant, at 5 o'clock, at the Royal Aero Club.

The International Aero Exhibition, Paris.

In connection with the International Aero Exhibition which takes place in Paris, October 26th–November 10th, 1912, the South-Eastern Railway will issue week-end tickets on October 25th, 31st, and November 8th, available to return up to, and including, Tuesday following the date of issue by the short sea routes via Dover and Calais, and Folkestone and Boulogne. The week-end tickets are available on the above dates by the 10 a.m. train from Charing Cross arriving Paris 5.20 p.m., the 2.20 p.m. reaching Paris at 11.25 p.m., and the 9 p.m. train arriving Paris 5.40 a.m. The return trains from Paris are the 8.25 a.m., 2.30 p.m. and the 9.20 p.m.

The Return Fares are: First Class, £2 18s. 4d.; Second Class, £1 17s. 6d.; and Third Class £1 10s.

Membership of the Royal Aero Club.

The membership of the Royal Aero Club is being added to each week, and a large number of new members have been elected during the year. The Committee, however, hopes that all members will use their best influence in extending the membership. The subscription of those members elected between now and the end of the year will cover the period ending December 31st, 1913.

166, Piccadilly.

HAROLD E. PERRIN, Secretary.

FROM THE BRITISH FLYING GROUNDS.

Brooklands Aerodrome.

MONDAY of last week there were quite a lot of different machines flying. Petre on the Martin-Handasyde was doing well, also Raynham on the Howard-Flanders mono. The "Bristols" were busy as usual and the Vickers, too. Tuesday morning, Mr. Percival, on his 35-h.p. Anzani-Caudron biplane, made an appearance after being absent for some time, and made some very decent flights. Petre was on the Martin-Handasyde flying very gracefully, being up for 1½ hours and climbing upwards of 3,000 ft. Raynham on Flanders and other schools out as on the previous days. Wednesday several machines out in the morning but too windy in the evening for flying, but next morning there were quite a number of machines out including Raynham on the Flanders, Percival on the Caudron, Bristols, Vickers, Petre on Martin-Handasyde. Mr. Sabelli was out in the evening on the Hanriot monoplane for about half-an-hour, doing some excellent figures of eight and spirals.

Friday morning Mr. Percival was out again very early on his little Caudron, climbing very high. Petre was on the Martin-Handasyde monoplane for over an hour, flying splendidly at 2,000 ft. He was also flying in the afternoon well. Other schools were well

at work all day, Raynham having the new Flanders up for some good flights.

Mr. Percival, Saturday morning on the Caudron, Petre on Martin-Handasyde in the afternoon flying in a very strong wind. Sabelli made several good circuits on the Hanriot. Later nearly every school was out, the weather being very good. At 4.30 p.m. Mr. Wright arranged a quick "get-off" competition, which greatly amused the many spectators present. There were six machines entered. Mr. Spencer (Spencer biplane), Mr. Pashley (Sommer biplane), Mr. Merriam (Bristol), Mr. Percival (Caudron biplane), Mr. Barnwell (Vickers mono.), and Mr. Knight on another Vickers mono. The winner was Mr. Merriam on the Bristol with 7 secs., Mr. Barnwell being second in 8 secs., and Mr. Spencer third in ½ sec. more. In the evening Petre up again for some time at 2,000 ft. on the Martin-Handasyde mono.

On Sunday blowing too hard for flying.

Bristol School.—On Monday morning last week the wind was too strong for flying. Bendall tested conditions in the evening but found weather still fairly rough. Capt. Pigot and Boger, Lieut. Pretymann, Mr. Payze and Mr. Darracq were all putting up

good straight flights, Bendall taking up Lieut. Rodwell and Major Forman. Bendall was first up on Tuesday for a trial, then giving tuition to Lieut. Boyle, Major Forman and Lieut. Rodwell. Capt. Boger and Read, Lieut. Pretymann, Mr. Payze and Mr. Darracq all out for solos, Capt. Pigot flying straight. Bendall started school work in the evening, after making a trial by taking up Major Forman and Lieut. Boyle. Capt. Boger then set out to undergo the tests for his certificate, which he carried out quite well, as also did Capt. Read, both pupils flying extremely well. Good solos were also made by the following pupils, Capt. Pigot, Lieut. Pretymann, and Messrs. Payze and Darracq.

Merriam was first out Wednesday taking up Lieut. Rodwell and Major Forman, Bendall ascending with Capt. Boger and then Major Forman. Capt. Pigot was up for two very good straights, Lieut. Pretymann also flying a fine solo. Mr. Payze then set out for the tests for his *brevet* which he accomplished very satisfactorily, making good flights with excellent landings. Merriam also took up Lieut. Kitson for instruction, reaching 1,000 ft. and finishing with spiral *vol plané*.

After Merriam had made a trial on Thursday, Lieut. Boyle was taken for a trip, after which Major Forman went up with Merriam behind. Capt. Styles first made a solo and then passed the necessary tests for his certificate, flying very well. Capt. Pigot was away for several straights, Mr. Darracq carried out good solo, Bendall taking Lieut. Kitson. Bendall made first trip in the evening with Lieut. Boyle. Good solo flights were carried out by the following pupils: Major Forman, Lieuts. Rodwell, Kitson, Pretymann, and Mr. Darracq, Capt. Pigot doing good straights.

On Friday Bendall took Capt. Pigot for trial, then ascending with Lieut. Kitson. Merriam took Lieut. Rodwell, and then went as passenger with Major Forman and Lieut. Boyle. Capt. Pigot completed his first circuit very well, and Lieut. Pretymann, after making a solo, successfully passed the tests for his certificate, reaching close on 1,000 ft., with good landings.

Merriam tested the conditions on Saturday, then gave tuition to Lieut. Kitson, and up as passenger with Major Forman. Capt. Pigot made two fine circuits, and Bendall was busy with Lieuts. Boyle and Rodwell. Capt. Pigot was taken by Merriam for practice in right-hand turns and landings, afterwards going up with Major Forman, but the rising wind prevented further work. Merriam entered for quick getting-off competition, in which the Bristol was the winner. Capt. Pigot made two circuits, Mr. Darracq a solo, then Lieuts. Kitson, Boyle, and Rodwell received instruction from Merriam.

Vickers School.—Knight and Barnwell out early Tuesday last

week on the school Farmans, with Messrs. Corballis and Soames, for instruction. Mr. Corballis then doing straights by himself on No. 1 Farman, while Capt. Stott and Mr. de la Ferte were taking turns on Vickers No. 3. Barnwell took up No. 5, and then handed her over to Mr. de la Ferte, who tried his hand on this machine for the first time, doing some quite good straight lines. Barnwell then on No. 6 with various pupils for passenger flights, and Mr. Soames started rolling on No. 3.

Barnwell and Knight out on Wednesday on the Farmans with Mr. Corballis and Mr. Soames, later Mr. Corballis out by himself. Capt. Wood smashed up No. 2 Farman owing to a wheel buckling and the machine swinging into Vickers 3. Capt. Stott on No. 3 and Barnwell out for half-an-hour on No. 5, finishing with a nice *vol plané* from 2,500 ft.

Thursday morning, Knight was out with Mr. Corballis, on the Farman, when the propeller (not a Vickers) burst over the sewage farm. The task of landing in the mud proved too much for Mr. Knight, and the machine stood on its head, the pilot and pupil having a somewhat unpleasant bath. Capt. Stott out on No. 3. In the evening Knight took out No. 5, and then handed her over to Mr. de la Ferte, who put in some good circuits. Barnwell was on No. 6, with Mr. Soames and then Major Cameron as passengers.

Capt. Stott and Mr. Soames on No. 3, Friday, Mr. Barnwell then took up No. 6 with Mr. Soames for a short trip across country. Saturday, Capt. Stott on No. 3 and Barnwell out for his usual jaunt on No. 5 at over 2,000 ft., followed by Knight and Mr. de la Ferte on the same machine. The latter flying well and steadily. He seems now as much at home on the monoplane as he was on the biplane.

Mr. Soames was out on Sunday on No. 3 doing hops, and Barnwell was taking up passengers on No. 6. On Monday, Capt. Stott and Mr. Soames both doing straights on No. 3, Barnwell being out on No. 5.

Eastbourne Aerodrome.

THE weather during the week has been fairly good, but, owing to the Bristol being under repair, the biplane pupils have not been able to put in any practice. Mr. Hammond has seized the opportunity to take a short holiday, and thereby disappointed many people anxious to see his wonderful exhibition flights, which have made him so popular in Eastbourne. The newly acquired Sommer biplane will shortly be ready for use and will provide a stand-by when the Bristol is under repair.

On Wednesday and Thursday Messrs. Roberts and Thompson put in some good rolling practice on the 25-h.p. Anzani. Mr. Thompson succeeded in doing considerable damage to the machine through getting his tail too high.

On Saturday Mr. Fowler was flying on his Blériot for a good time.

Sunday was too rough for any practice, but on Monday afternoon the weather improved and Mr. Foggin successfully completed the first half of his *brevet* tests. Using the 28-h.p. Anzani-Blériot, he flew extremely well throughout and landed within 3 yards of the mark. Mr. Gassler then went up for his second half, but after doing two figure eights the petrol pipe broke, and compelled him to do a *vol plané* from about 300 ft. which he accomplished with perfect judgment. The 35-h.p. Y-type Anzani, which the Company have just purchased, is being fitted into a Blériot and when completed will be used as a *brevet* machine.

On Wednesday Messrs. Gassler and Foggin completed the second half of their *brevet* tests. Mr. Gassler did his second half in excellent time, but unfortunately did not land within the required distance of the mark, so was compelled to do the five figure eights over again. At his second attempt he made a splendid landing, and pulled up almost on the mark. Messrs. Foggin and Gassler are to be congratulated upon their perseverance, as through one misfortune and another they have both done about 17 figure eights in order to qualify.

London Aerodrome, Collindale Avenue, Hendon.

Grahame-White School.—School work started early Monday morning last week, Mr. Lewis Turner being out with Lieut. Birch giving a long instruction flight. In the evening Capt. Halahan and Mr. Howard Wright were doing some good straight flights on No. 7 biplane, and Mr. Fowler straights on 25-h.p. Blériot. In the morning next day Capt. Halahan flew his first circuit in fine style at a good altitude on No. 7 biplane, Lieut. Small flying good figures of eight on No. 5 biplane, and ready for *brevet* tests, Mr. Fowler doing straight flights on 25-h.p. Blériot, Mr. Howard Wright straights on No. 7 biplane. In the evening, Mr. Howard Wright got in some very good practice at straight flying on No. 7 biplane, and Mr. Lan Davies straights on the 35-h.p. Blériot.

Thursday morning, Capt. Halahan did some excellent work on *brevet* biplane, making several good circuits (very fine flying in view of the fact that this is the first time he has been on this machine). Mr. Howard Wright made straight flights on No. 7 biplane, and Lieut. Birch and Mr. Clarke were rolling on the same machine.

Mr. Howard Wright on Friday making straight flights on No. 7 biplane, Mr. Fowler also doing straights on 25-h.p. Blériot.



Mr. Arthur Payze, who has just qualified for his pilot's certificate under the tuition of Mr. Merriam on a Bristol biplane at Brooklands. Mr. Payze is not only a skillful pilot, but has a thorough knowledge of both engine and machine.

Commander Yeats-Brown flying circuits and figures of eight. Capt. Halahan making circuits on No. 5 biplane.

Sunday, Capt. Halahan and Lieut. Small flying circuits on *brevet* machine, a stiff wind keeping them from starting *brevet* tests.

Altogether a very busy week, and real good work done by pupils.

On Sunday, in spite of a very gusty 25-m.p.h. wind, Mr. Louis Noel started punctually at 3.30, and gave an excellent exhibition flight on the 80-h.p. Henry Farman biplane, flying for about 20 mins. Later, Mr. Gustav Hamel out on his 70-h.p. Blériot monoplane, making several flights and stunting in a hair-raising manner.

Blériot School.—Messrs. Welburn and Gratien put in a good practice on Monday evening last week, the former doing five straights in succession on LB 3, and the latter similarly on No. 2. Although M. Gratien has not had a great deal of practice, he has come on very rapidly of late, and with attention to his landing, should do well.

As soon as the usual morning fog departed, Tuesday, Messrs. Gandillon and Gratien went out on No. 2 for straights and circuits, but as the wind quickly rose, they confined their attentions to the former only. In the afternoon Messrs. Sacchi, Welburn Gandillon and Gratien put in good work, each doing five straights.

Wednesday, M. Gratien had No. 2 out for straights and got up to 10 ft. each time, flying and landing with great confidence. Rain during the afternoon prevented further work.

Messrs. Reilly, Gratien, Sacchi and Gandillon did good work Thursday morning, all at straights. Mr. Reilly on LB 2, guiding himself up to 25 ft. during a straight flight and too near the enclosures to land, steered an excellently banked right-hand turn and landed beautifully—this being his first turn. In the afternoon, M. Gandillon did two circuits on No. 3, and M. Gratien straights. Clappen made a re-appearance at the school after having been away for some little time, and his straights show that he has not forgotten his past work.

During Saturday morning, Messrs. Sacchi, Gratien and Clappen were all at work at straights on LB 3, and making good progress, although there was somewhat too much wind about for circuits.

Deperdussin School.—Wednesday morning last week fog prevented any pupils' work. The arrival of the 100-h.p. machine for War Office caused considerable interest, and rest of day was devoted to its erection.

Bright weather Thursday morning and suitable for air-work. Spratt took out *brevet* machine and finished last stages of his tests for *brevet* in fine style. Engine stoppage compelled him to land at other end of ground, so when engine again running he took machine up again, and finished his *brevet* tests for landing with ease. A little diversion was caused when Mapplebeck took out Taxi 2 for practice, and later when going strong took a course for the Blackburn monoplane, heading into its rudder with the best of Rugby manners. Very little damage was caused, however, the Blackburn sustaining a twisted fuselage and the Deperdussin a few strained wires.

The weather, although bright Thursday evening

with plenty of sunshine, did not allow many trips until later in the afternoon, when wind dropped considerably. Taxi 2 was immediately out for pupils and Mr. Phelps took the wheel first for rolling practice. Other school pupils out after *brevets*, prevented Capt. Tucker from taking his ticket owing to lateness of day when they finished. Instructor Brock put up several circuits on racer.

Weather foggy Friday morning and no flying. Later, fog

lifted, but too windy for pupils. Towards evening Brock did a few circuits, but soon came down finding wind too rocky. Next morning, bright, and *brevet* machine No. 4 taken out by Capt. Tucker, who put up two circuits. Hooper, Brock, Whitehouse, and Phelps all put in good work on school Taxi No. 2. Phelps ended further work on that machine by breaking skid. Hooper, Brock, and Capt. Macdonald at work with Taxi 3. All put in good rolling practice. Afternoon, Lieut. Gordon Bell testing the new 100-h.p. Gnome-Dep. for War Office, did two circuits prior to the start of speed handicap. Later, Lieut. Spencer Grey took out 60-h.p. Anzani two-seater, which put up good show in the handicaps, but owing to the judges' severe handicapping the Dep. dropped out after four circuits.

W. H. Ewen School.—School work started on Monday afternoon, last week, after fog had cleared. Under M. Baumann, Mr. M. Zubiaga had his first instruction in controls on monoplane No. 1, while Mr. L. Russell put in some good practice hopping on same machine. Mr. Sydney Pickles had the 35-h.p. Caudron out and after short test flight Capt. Chamier, Lieut. E. Conran and Mr. H. James each did two straight flights, handling the machine confidently and making good landings.

Tuesday flying commenced at 10 a.m., when Mr. Pickles, after test flight on the 35-h.p. Caudron, handed the machine over to Capt. Chamier, who then started off on his first circuit which he carried out in an admirable manner and landed exactly where previously indicated. Fog prevented further work.

A long and continuous afternoon's work commenced when Capt. Chamier made three circuits of the aerodrome, flying steadily at 150 ft. and making a capital landing. Mr. H. James then made his first circuit, flying confidently, later completing other two circuits making good landings. Lieut. E. Conran also carried out his first circuit on the same machine, which he accomplished in excellent style.

M. Baumann was also getting good results from pupils on monoplanes Nos. 1 and 2. Mr. L. Russell making rapid progress hopping, while Mr. M. Zubiaga made several straight rolls. Lieut. Maurice W. Noel, a new pupil at the school, received his first instruction in controls.

On Wednesday the pupils were out at 9.30 under the instruction of M. Baumann, Mr. L. Russell making rapid progress in straights. Mr. M. Zubiaga rolling on No. 1 monoplane, while Lieut. M. W. Noel making good progress on the same machine. Mr. Pickles was also hard at work on the 35 Caudron, and after a test flight Capt. Chamier and Mr. H. James put in some good flying practice, greatly adding to their flying experience. Mr. Pickles then made an exhibition flight in a fast-rising wind, executing some pretty banked turns and finishing with a *vol plané* from 500 ft.

Thursday, pupils out at 6.45 under instruction of M. Baumann. Mr. H. Gist made several straight flights on monoplane No. 2. Mr. L. Russell making rapid progress and learning to leave the ground on No. 1 machine. Mr. M. Zubiaga showing considerable improvement in rolling, while Lieut. M. W. Noel made several good straight rolls on the same machine.

Mr. Pickles made test flight, after which Capt. Chamier, Lieut. Eric Conran and Mr. H. James got in some good flying practice on the 35-h.p., all doing figures of eight and circuits and practising landing near the mark. In the afternoon the 35-h.p. Caudron was again out, Mr. Pickles making a fine exhibition flight and executing a perfect spiral *vol plané* from 1,000 ft., describing three circles landing without the motor.



Mr. Edward Birch, of the Melly School, Waterloo, Liverpool, who has just secured his *brevet* on a Blériot monoplane.



Mr. W. L. Hardman, another pupil at the Melly School, Liverpool, who also last week was granted his *brevet* on a Blériot monoplane.

Another Caudron *brevet* was added when later Capt. Chamier went for his tests, which he carried out in excellent style on the 35-h.p., doing his figures of eight with clocklike regularity at an altitude of 300 ft. and landing on the mark. Capt. Chamier has a natural instinct for flying and should, with a little more experience, take a position in the front rank of aviators. Mr. R. S. McGregor joined the school during the day. On Friday Mr. Pickles started school work at 10.30. Mr. H. James flew four and a half figures of eight when, owing to the wind springing up, he descended making a good landing. In the afternoon Mr. Pickles was again out on the 35-h.p. Caudron on which he made two exhibition flights; on each occasion he reached over 1,200 ft., finishing with a *vol plané*.

On Saturday, at 6.30, M. Baumann was out with monoplanes 1 and 2, Lieut. M. W. Noel making good progress in rolling, while Messrs. L. Russell and M. Zubiaga were rolling and hopping.

Another Caudron *brevet* was added by Lieut. Eric Conran, who carried out his *brevet* tests in an excellent and confident manner, making good landings on both occasions. His figures were perfect, and equal to a flyer of considerably more experience. Later Mr. Pickles went for a cross-country flight lasting 45 mins.

Salisbury Plain.

Bristol School.—On Monday last week a strong wind prevented any flying in the morning. Pizey was out first in the afternoon for test, then ascending with Mr. Gray, a new pupil. Harrison was giving instruction to Capt. Williams, Kunhardt and Penfold. Mr. Gray was then taken for a second trip by England. Weather was too gusty for pupils' solos, darkness bringing a close to all work.

Pizey was first up on Tuesday with Lieut. Parker, completing figure of eight to give pupil exact idea of course for certificate. Lieut. Parker then went out for his tests, which he accomplished in very satisfactory style, banking and landing remarkably well. His observers were Capt. Dawes and Lieut. Lawrence. Mr. Gray was first pupil out in the afternoon, ascending with Pizey for two long tuition flights. Capt. Williams was then taken by Pizey who also took up Mr. Gray and Mr. Lywood for trips in one of the monoplanes. England took Capt. Williams and Lieut. Shakelton for landing practice and two trips to Mr. Gray, afterwards making trial of one of the monoplanes. Prince Cantacuzene was out for two long flights on one of the monoplanes, flying extremely well. Capt. Lucina and Mr. Lywood both carried out remarkably fine flights on biplanes, finishing with *vol planés*. Capt. Williams and Penfold each solo with good landings. Lieut. Wall out for a biplane solo, Mr. Lywood trying for his tests made two series of figures of eight, but each time failed to land close enough to the mark.

On Wednesday, England was out for test, but found fog too thick for school work. England out later with Mr. Featherstone making two flights, also one flight to Mr. Gray and Capt. Penfold. Pizey took Mr. Gray for tuition and then Prince Cantacuzene in one of the tandem monoplanes. Capt. Lucina made a very fine flight in biplane, landing well, Prince Cantacuzene setting out for a solo in tandem monoplane in quite a strong wind, but carried out a good solo landing very neatly. Wind prevented further work.

Pizey out first in the evening taking Mr. Gray for two long trips, also taking Mr. Gray in tandem monoplane. Prince Cantacuzene went for two long flights in a tandem monoplane, flying in a very clever manner and showing complete mastery over the Bristol machine. Fine solos by Capt. Lucina, Williams and Penfold.

Harrison was out early Thursday morning with Capt. Kunhardt, reaching 1,000 ft., and finishing with *vol plané*, then taking up Mr. Lywood in side-by-side monoplane. England had Lieut. McArthur for a high flight, also taking same pupil in side-by-side machine, and giving him charge of controls. Pizey was with Mr. Gray at 800 ft., finishing with spiral *vol plané* over hangars, then up with Lieut. McArthur in side-by-side, and making a trial of one of the tandem monoplanes. Mr. Gray was taken up for another flight with many landings for practice.

Prince Cantacuzene got in two excellent flights on tandem monoplane, reaching fully 1,200 ft. and landing well. Capt. Lucina and Mr. Lywood each good solos with *vol planés*, and Capt. Penfold, Williams and Kunhardt were also all out for good flights. Although a fairly strong wind was blowing, good performances were put up all round, and speak well of the progress made by pupils at this school. Harrison commenced work in the evening, giving a flight each to Capt. Penfold and Williams and Mr. Featherstone. England took up Capt. Kunhardt and Lieut. Shakelton, whilst Pizey ascended twice with Mr. Gray. Prince Cantacuzene was out as usual, flying two very fine solos.

On Friday, Harrison was out first for trial solo and then tuition to Capt. Williams and Penfold and Lieut. McArthur. England was with Capt. Kunhardt and Mr. Featherstone on biplane and Pizey took Mr. Gray. Capt. Lucina finished school work by making a solo. Pizey made first test in the evening, Harrison taking Capt. Penfold to 1,000 ft. in wind of nearly 30 m.p.h., afterwards ascending with Lieut. McArthur for tuition. England was occupied with tuition of Capt. Kunhardt and Mr. Featherstone. Wind as strong as earlier in the evening. Pizey took up Mr. Gray, this pupil showing such great improvement that he will now start solo work. Prince Cantacuzene was putting up a good exhibition in the wind. Busted, whilst out for a test of a new 80-h.p. monoplane, flew over to Upavon, circling round hangars and then back.

Royal Flying Corps.—On Tuesday of last week a good morning's work was got in. Air Mechanic McCudden starting the ball rolling with a twenty minutes' flight on the Maurice Farman, after which Capt. Dawes mounted the machine, but had to come down through engine trouble at Busted Camp. Lieut. Wadham on biplane 205 made a couple of flights, and Lieut. Lawrence took Air Mechanic Strugnell for two scouting trips round the Plain. One or two visitors flew over from the C.F.S. at Upavon and Commander Samson arrived on Avro biplane 406, at a height of 1,200 ft. One machine had carburettor trouble, but Lieut. Longmore was able to fly it back to Upavon later in the day. Capt. Dawes, Lieut. Lawrence, and Lieut. Wadham put in some more flying during the afternoon, after which there was no further flying until Monday when Lieut. Fox made one flight and Major Carden had the Dunne biplane in the air twice.

Shoreham Aerodrome.

Avro School.—Mr. Raynham has been putting up some good flying on the military competition machine, in which he intends to fly for the Michelin duration at Brooklands. On Monday morning, in thick fog, he flew from Shoreham to Brooklands in 45 mins. On Friday last week he was up 1,000 ft. over the sea, and on Saturday he made a wide circuit over Shoreham and Worthing.

England School.—Friday last week, Newton Smith doing circuits, and on Monday, Mr. G. N. Humphrey getting in some straights. Engine trouble stopped any chance at circuits.

AIRSHIP AND BALLOON NEWS.

Long Voyage by "Adjudant Reau."

WITH a dozen persons on board including Col. Hirschauer, the French military dirigible "Adjudant Reau," cruised over Issy, Paris, St. Ouen, Asnieres, and St. Cloud for over three hours and a half on the 16th inst., and on the following day she was out again for two hours and a half cruising to the south of Issy.

The French Rigid Dirigible.

THE work of inflating the "Speiss," the rigid dirigible built by Zodiac Co., and presented by M. Speiss to the French Government, has been nearly completed at St. Cyr, and it is hoped to commence the trials of the new airship within a few days.

"Charlotte" at Work Again.

THE big Parseval cruiser "Charlotte" has recommenced work at Cologne, and on the 16th inst. was out for an hour and a half with sixteen persons on board. She made a similar voyage later on the same day.

An Accident to the Naval Zeppelin.

THE German Naval Zeppelin "L 1" has not seen much service before being placed *hors de combat*. She was being placed in her shed at Johannisthal on Sunday when a chain dropped from the roof and fell through one of the ballonets.

A Balloon Fatality in Germany.

By an extraordinary accident Germany lost the services of one of her pilots in the Gordon-Bennett Balloon Race, which is to start from Stuttgart to-morrow, Sunday. Accompanied by a friend (Lieut. Stichter) Lieut. Gericke, who won the Cup in America last year, started on Sunday from Bitterfeld in the balloon "Berlin II," which was to have taken part in the forthcoming race. They had reached Spansberg, in Saxony, when the balloon exploded, apparently owing to being struck by lightning. The recording barometer showed that the balloon rose quickly to 3,000 metres, and then shot up suddenly to 5,000 metres. Both the occupants of the car were killed in the subsequent fall.

Voyage by Russian Dirigible.

ON October 11th, the Russian military airship "Lebed," piloted by Capt. Chabsky, made a voyage of two hours' duration, during which some tests were made with a Mitrailleuse.

An Aviette's Success.

AT the Parc des Princes Track at Paris on Saturday, the cyclist Rettich, on a bicycle temporarily fitted with a pair of wings of about 10 ft. span, succeeded in getting his bicycle in the air and over two sticks one centimetre high placed one metre apart. He thereby won the prize of 500 francs offered by M. Bernard J. Dubos.

BRITISH NOTES OF THE WEEK.

Carlingnose Aviation Centre Closed.

ACTUAL flying is now ended at the new aviation centre at Carlingnose, on the Firth of Forth, and the machines have been packed up for return to Eastchurch.

New Naval Aviators.

As will have been seen from the Royal Aero Club's Official Notices in last week's issue, four pilot certificates have just been gained at the Naval Flying School at Eastchurch. Three of the successful pupils—Lieut. C. L. Courtney, Paymaster E. R. Berne, and Acting Boatswain H. C. Bobbett—were appointed to undergo a course of training in aviation on August 19th, and Electrician A. Deakin, the fourth, likewise only required a short period of training.

Avro Leading in Michelin Competition.

THE enclosed military Avro biplane with Green engine, now leads in the competition for the Michelin Cup, No. 1. On Tuesday, piloted by F. P. Raynham, the machine flew at Shoreham for 3 hrs. 50 mins.

Mr. Sopwith Has a Try.

AT Brooklands on Monday last, Mr. Sopwith started off on the A.B.C.-engine Burgess Wright biplane at 7.35 a.m. and remained in the air at an altitude of 2,500 ft. until shortly after 10 a.m. when he descended.

A Lecture by Col. Cody.

WITH the object of assisting the fund for the purchase of the equipment of the War Kite Squadron which the Kite and Model Aeroplane Association is endeavouring to raise, Col. S. F. Cody will give a lecture at Caxton Hall, Westminster, on "What the Nation should do to Stand First in Aviation." The lecture will be given on Friday, November 8th, at 8 p.m., and tickets at 6d., 1s., 2s., and 5s. can be obtained from the Secretary, Mr. W. H. Akehurst, 27, Victory Road, Wimbledon.

Mr. Hamel at Chester.

ON Wednesday, last week, the inhabitants of Chester had an opportunity of seeing Mr. Hamel in the air, and incidentally of helping their local infirmary, to which institution a portion of the admission charges were given. Mr. Hamel made two flights on his Blériot monoplane, in one getting up to a height of about 5,000 ft. in spite of the gusty wind which prevailed. In the second trip he was in the air for about half an hour, and was loudly cheered on his descent.

Competitions at Brooklands.

THE Speed Handicap which was arranged for Sunday last and had to be postponed owing to the gusty wind, will be held to-morrow, Sunday. There are 11 entrants, Sabelli (Hanriot), Barnwell (Vickers), Knight (Vickers), Petre (Martin-Handasyde), Sopwith (Burgess Wright), Pashley (Sommer), Merriam (Bristol), Hedley (Burgess Wright), Spencer (Spencer), Raynham (Flanders), Percival (Caudron). The competition arranged for to-day, Saturday, is a bomb-dropping and alighting competition in which each competitor will take up a bomb, fly one circuit of the course, drop the bomb on the target, fly another circuit and endeavour to land as near the mark as possible. The entrants include Messrs. Sopwith, Merriam, Pashley, Spencer, Percival, and Hedley.

Mr. Cody Flies High.

ACCOMPANIED by a lady, Mrs. Bass, and his son Frank, Col. S. F. Cody made a trip of thirty miles from Laffan's Plain on the 17th inst., during which he went up to a height of over 4,000 ft.

An Aeroplane at Colchester.

ON Saturday morning Capt. Raleigh and Lieut. Hetherington flew on a biplane from Farnborough to Colchester, and after circling round the town, landed in the Abbey field just near the barracks. After a brief stay, during which they were inundated by questions as to the working of their machine by a large number of officers from the barracks who inspected it, the two aviators flew over to Berechurch Hall, where Mr. and Mrs. Hetherington were entertaining a large house party.

Lamps on the Henry Farman Biplane.

ALTHOUGH we have mentioned many times that the 80-h.p. Henry Farman biplane at Hendon was fitted with the well-known C. A. V. electric lighting system for night flying, it may be that some of our readers may not have noticed it. It should have been noted under the sketches of the lamps which we published in connection with a description of this machine last week that the searchlights and the whole of the lighting was carried out by Messrs. C. A. Vandervell on the C. A. V. system, and has proved a decided success.

A Donnet Leveque at Eastchurch.

ON Tuesday the Donnet Leveque hydro-aeroplane ordered by the Admiralty, arrived at Eastchurch from Paris when it was at once assembled. The work was finished just before dusk and M. "Beaumont" was able to make a trial trip over the Medway. Its official designation is to be H. 7.

Good Work at Ewen School.

THE fact that three certificates were secured in three days last week-end at the Ewen School at Hendon, proves Sydney Pickles to be one of the best instructors as well as flyers, and with the invaluable help of Mons. Baumann,

the Assistant Instructor, half a dozen pupils have been passed—all on Caudron machines—since he joined the school. The last three to pass were Capt. Chamier, an Indian officer, Lieut. Eric Conran, an Australian officer and H. H. James, the Welshman.

Fox Hunting by Aeroplane.

ARRIVING at the Hendon Aerodrome, about 9.20 on Saturday morning, Mr. Sydney Pickles heard that a pack of hounds in full cry had crossed the aerodrome about ten minutes before. As he had never seen an English hunt, he thought it would be a good idea to follow it by aeroplane, and so got the Caudron biplane into the air, and in a few minutes had sighted hounds. He followed the hunt for about ten minutes and then returned to the aerodrome.

Mr. Valentine in Ireland.

ON Thursday, of last week, Mr. Valentine visited Castlebar with his Deperdussin monoplane and made a very good exhibition flight. Afterwards Mr. Harry Delacombe, his manager, gave a dissertation upon the manipulation of the machine, which was greatly appreciated by a large audience, and then Mr. Valentine put in another exhibition flight, finishing up with a circuit of the town.

Flight "Man-Birds."—II.

—From the original by Frank M. Williamson.



THE BLUE-BIRD.

WEEK-END FLYING AT HENDON.

HENDON was again favoured with fine weather last Saturday, and the whole programme was got through without a hitch. At 3 p.m., punctually, Sydney Pickles brought out the 35-h.p. Anzani-Caudron biplane, and made a flight of about 5 mins. As he landed, Louis Noel went up on the 80-h.p. Gnome-Henry Farman, and remained aloft for 15 mins. Marcel Desoutter then got in a short flight on the 50-h.p. Blériot, after which J. L. Travers went up for a 6-min. flight on the 70-h.p. "Wake Up England" Farman. He was followed by B. C. Hucks, who, on his 70-h.p. Blériot, made a trial flight lasting about 11 mins., and at a height of well over 1,000 ft. Just before he landed he made a splendid spiral *vol plané*.

At about four o'clock, J. L. Travers started for the altitude contest on the 70-h.p. Farman. He seemed to climb very slowly, and at times appeared to drop some appreciable distance. While Travers was soaring heavenwards, Noel was "stunting" on the 80-h.p. Farman, and provided several thrills for his audience. He handles his mount in a masterly fashion. When he came down and there was some room in the air, B. C. Hucks ascended on his 70-h.p. Blériot to try for the altitude prize, and it was not long before the machine was completely lost to view, partly owing to the height attained and also owing to the machine being nearly all white, so that, even under ordinary circumstances, it is very difficult to locate it once you lose sight of it. Sydney Pickles again went up on the 35-h.p. Caudron a few minutes after Hucks, and got through about 12 mins. high flying, after which Noel took up a passenger on the 80-h.p. Farman, J. L. Travers landing about a minute after Noel had started, having reached an altitude of 2,850 ft. Hucks came down shortly after, his height being 6,850 ft., a record for Hendon competition flying.

At 4.22 p.m. Lieut. Gordon Bell made a trial flight on a two-seater Deperdussin monoplane with a 14-cyl. 100-h.p. Gnome engine, while R. T. Gates gave a fine exhibition flight on the "Wake Up England" bus. Subsequently Noel took up another passenger, and Lewis Turner made a trial flight on the Grahame-White biplane.

The third heat of the Grand Speed Handicap, postponed from Saturday the 12th inst., was then held. The course was over four laps of the aerodrome, and the starters were: J. L. Travers on the

50-h.p. Gnome Grahame-White biplane, R. T. Gates on the 70-h.p. Henry Farman biplane, and Lieut. Spencer Grey on the 60-h.p. Anzani-Deperdussin monoplane. Travers, who had 1 min. 42 secs. start from Lieut. Grey (scratch), came in first 11 secs. in front of the latter, and Gates (36 secs. start) came in third 1 sec. behind Lieut. Grey. The final heat of six laps produced five starters, viz., Lewis Turner, 50-h.p. Grahame-White biplane (3 mins. 42 secs. start); Lieut. Spencer Grey, 60-h.p. Anzani-Deperdussin mono. (1 min. 52 secs. start); Louis Noel, 80-h.p. Farman (1 min. 43 secs. start); Marcel Desoutter, 50-h.p. Blériot mono. (1 min. 22 secs. start), and B. C. Hucks, 70-h.p. Blériot (scratch). All machines got well away, but engine trouble caused Lieut. Grey to retire after having covered four or five laps. As the last lap drew near excitement became more intense. Hucks, who had been rapidly overhauling his opponents, was just half-way through his last lap when he accidentally shut off his petrol supply, thereby having to give up at the last moment. Noel, by hugging close to the pylons, obtained first place, Desoutter coming in second, and Turner third. On the whole it was a very fine race. Below we give the results.

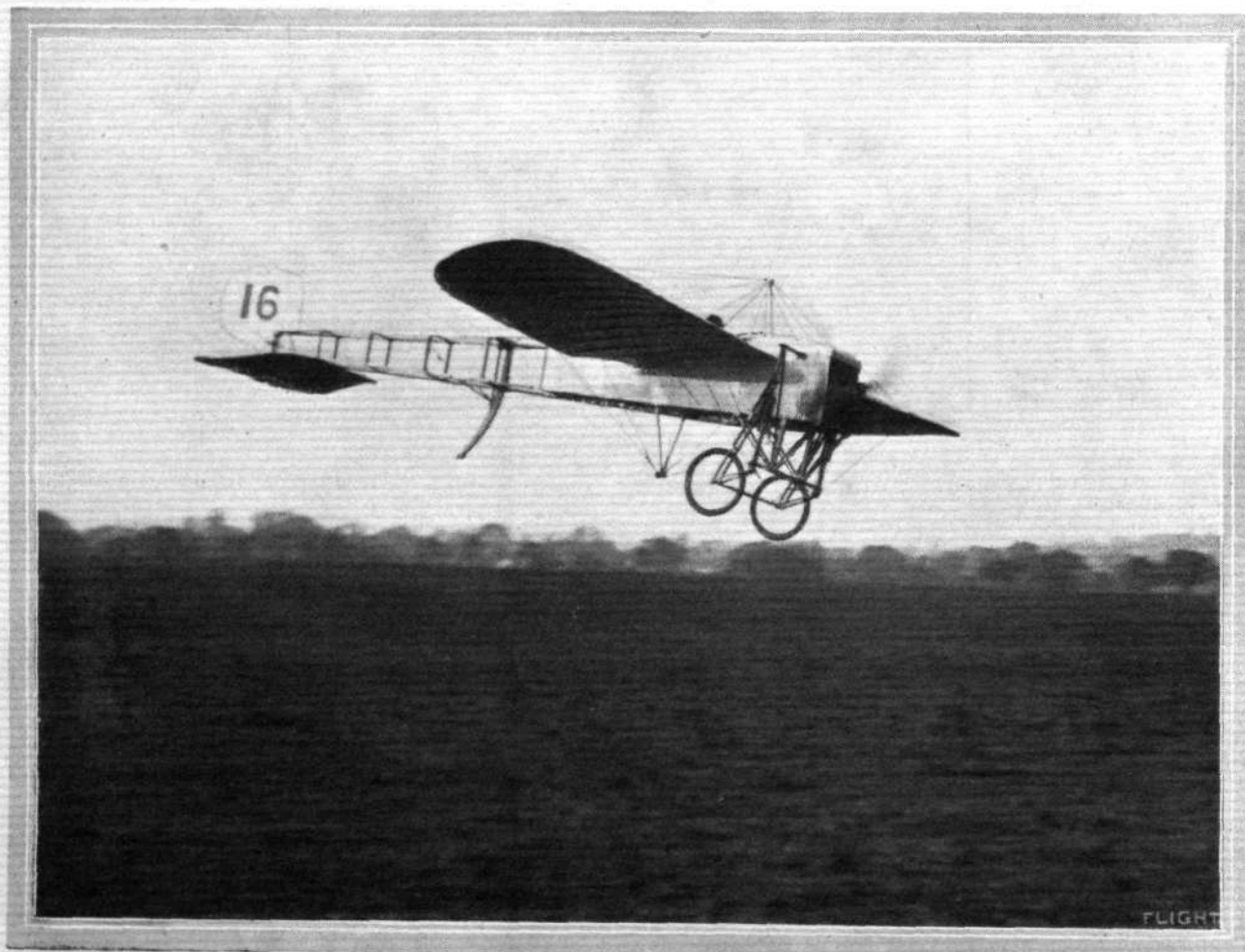
On Sunday afternoon, although it threatened rain and was very windy, a number of people visited the aerodrome on the chance of seeing some airwork, and they were well rewarded, for Gustav Hamel gave two of his daring and masterly exhibitions on his 50-h.p. Blériot. Louis Noel was also making some fine flights on the 80-h.p. Henry Farman biplane.

Altitude Contest.

	Height.
1. B. C. Hucks (70-h.p. Gnome-Blériot monoplane) ...	6,850 ft.
2. J. L. Travers (70-h.p. Gnome-H. Farman biplane)	2,850 ,,

Grand Speed Contest (6 laps). Prizes and Trophy presented by the International Correspondence Schools.

	Start.	Handicap	Net
	m. s.	Time.	Time.
1. Louis Noel (Henry Farman) ...	1 43	12 11	10 12
2. Marcel Desoutter (Blériot) ...	1 20	12 29	10 9
3. Lewis Turner (Grahame-White)	3 42	12 50	12 50



Mr. B. C. Hucks, on his Blériot, landing after making an altitude record for this year of 6,850 ft. at Hendon Aerodrome.

FOREIGN AVIATION NEWS.

An Italian Military Competition.

WITH a view to obtaining an Italian-built aeroplane suitable for military purposes, the Italian Minister of War proposes to organise a competition. Those taking part will have their expenses paid and the competitor making the best time over the course from Turin to Milan and Aviano, will be given an order for 14 machines.

The Russian Military Trials.

The Russian Competition for Military Aeroplanes was concluded on the 14th inst., when it was announced that Sikovsky on the Sikovsky biplane secured first place, a H. Farman built in Russia, piloted by Gaber Vliinsky second, with Boutmy's Russian-built Nieuport third. During one of the tests, Sikovsky's biplane carried a load of 865 lbs.

Henry Farman Biplanes for Servia.

HENRY FARMAN, on the 17th inst., at Buc, tested the first of a series of biplanes ordered by the Servian Government, the tests being watched by a Servian commission, including Lieuts. Vougovitch, Novitchich, and Petrovitch.

Servia Buys some Deperdussins.

ON the 17th, a party of Servian officers were at Issy in order to witness some Deperdussin monoplanes ordered by their Government being put through the official tests by Prevost.

Touring on an Hydro-aeroplane.

ON the 16th inst. M. Deutsche de la Meurthe visited the Astra Aerodrome at Meulan, and taking his seat on the Astra hydro-aeroplane was piloted by Labouret for an hour over the surrounding country. They then landed on the Seine at Havre, and after a few minutes started up the river for Rouen, which was reached in 53 minutes. The following morning Labouret took M. Deutsche back to Havre, from which point he returned by motor car to Paris, while Labouret went on to Caudebec and then returned to Meulan.

The Blériot "International" School at Etampes.

DURING the first fortnight of this month, sixteen new certificates were secured at the Blériot School at Etampes and they made quite an international mixture. Apart from the French officers and civilians the successful pupils included, Lieut. Sakelaroff (Bulgaria), Lieut. Ricardo Kirk (Brazil), Count Napoleon Rapini (Italy), Sousa Marques (Brazil), D. Fuentes (Chile), D. Rosillo (Cuba), and Papadopoulos (Greece).

More Attempts for the Pommery Cup.

DURING the past few days the bad weather has played havoc with the intentions of the entrants for the Pommery Cup. Bathiat, on the 16th inst. started for Calais, but returned after two hours flying and reported that the fog was too thick to permit him to go on. Audemars, who started from Biarritz on the same day on a Blériot, only got to Perigueux and then decided to give up. On the 18th, Brindejonc des Moulinais started on a Morane for another trip to Berlin. He got on to Mezeris, then, owing to the mist, decided to come down at the first opportunity, which presented itself about five kiloms. from Rethel. He then determined to fly back and make a fresh start. Gilbert, on the Rhone-engined Sommer monoplane, started from Valenciennes, and after making a stop near Beauvois got to Issy where he gave up.

French Government in Generous Mood.

SOME very sarcastic comment has been roused in France by the decision of the Minister of Public Works to allow the three aviators who went to America to represent France in the Gordon-Bennett Cup, the sum of £40, to defray their expenses, while the balloonists who went to Stuttgart in the Gordon-Bennett Balloon race have been allowed £20.

Two Fatalities in France.

WHILE flying in the neighbourhood of Mussidan on Sunday last the aeroplane of Lacour capsized, the pilot being thrown out and killed. A Swiss pilot Blanc, was testing a monoplane at Chalons Camp on the 17th inst., when at a height of about a thousand feet, the wing of the machine apparently broke causing it to crash to the ground, the aviator sustaining injuries to which he succumbed.

Good Work at Borel School.

ON the 15th inst., at Buc, Sapper Pecquet flew from Buc to Chartres and back, and Bouchey, on a 6-cyl. Anzani-Borel, finished his training by his flight of an hour over Versailles and Buc. A similar trial was made by Pinsard on the following day, when Pecquet was also up for an hour.

A Farman Hydro-Aeroplane for Japan.

FOURNY was testing a Maurice Farman hydro-aeroplane, built to the order of the Japanese Government, at Buc last week. With Capt. Unekita, a Japanese officer, and a full load on board, the machine easily fulfilled the various tests. During the day, Capt. Unekita qualified for his pilot's certificate.

Hydro-Avion—the Naval Aeroplane.

ALTHOUGH the term, avion, meaning a military aeroplane, has not yet, outside official circles, come into very general use in France, "hydro-avion," as the designation for a hydro-aeroplane for naval use, seems to be more generally accepted.

Busy Week at Farman School at Buc.

DURING the past week or so the Farman school at Buc has been very busy. Maurice Farman has tested quite a large number of machines for various Governments, while his brother Henry has been giving a great deal of attention to the new machine with improved undercarriage. On the 16th Henry Farman took his father for a lengthy trip over the country. Several of the military officers have made flights of over an hour, including Lieuts. Noe, Parent, Hommerain and Godot.

Another Caudron Superior Pilot.

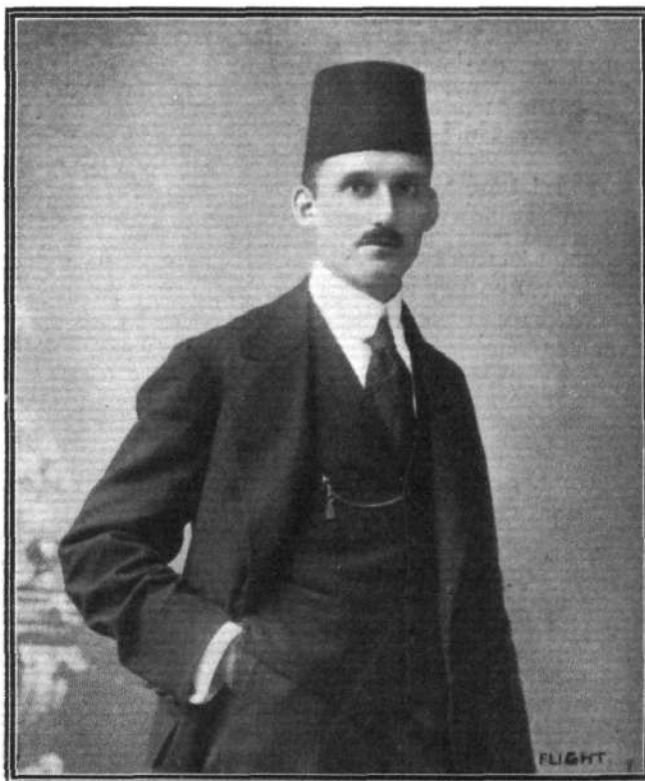
ON his Caudron biplane, Lieut. Poutrin passed the first test for a military brevet over the course, Crotoy-Le Treport-Calais-Crotoy.

Aerial Greeting for a Bishop.

ON the occasion of the installation of the new bishop at Mans on the 15th, Grazioli flew round the cathedral, and dropped a bouquet of flowers to which was attached a card with a suitable greeting. The flowers were picked up, and handed to the Bishop as he left the cathedral.

Vedrine on a Hydro-Aeroplane.

JULES VEDRINES has been turning his attention to hydro-aeroplanes, and at the end of last week was trying, at Juvisy, a Deperdussin machine with 80-h.p. Gnome similar to that which competed at St. Malo. He started with one passenger then returned for a second, then a third, and finally a fourth, and in spite of the weight the machine flew and landed perfectly.



Adolf Rentzell, the German aviator who has in the past put up a record on an Otto biplane for a four-passenger flight, and who is instructor of the Aviation Corps of the Imperial Ottoman Empire. He has now offered his services to the Turkish War Minister, which have been accepted, to take active part in the Turko-Balkan War so much to the fore,

A Clerget Rotary Motor.

AT the Deperdussin School at Rheims, Janoir has been testing a monoplane fitted with the new 50-60-h.p. Clerget rotary motor. On the 16th he made a flight of an hour and a-half, and on the following day made a non-stop trip of two hours and a half.

7,000 Kiloms without Trouble.

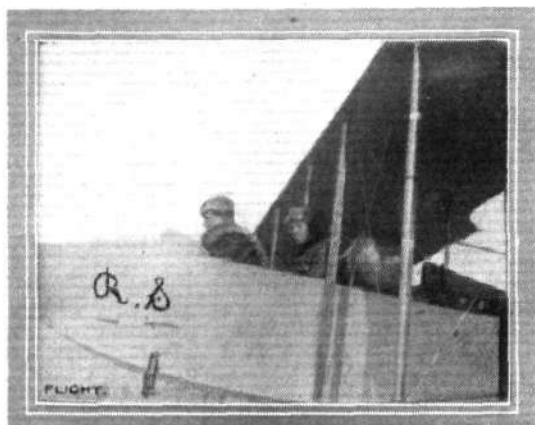
AFTER a season of exhibitions in various parts of Spain, Garnier has ordered a new Blériot, and in writing to the firm says that his first machine has flown a total distance of 7,000 kiloms. this year without the slightest trouble or mishap.

Maurice Farman Visits Etampes.

AFTER testing a machine built for the Italian Army, Maurice Farman, on Monday, decided to use it for one of his periodical visits to the branch school at Etampes. Accompanied by a lady passenger, he flew from Buc to Etampes, via Orleans, and returned to Buc during the afternoon.

A Deperdussin for Chile.

AT Issy, on Monday, after testing another Deperdussin for the Servian Army, Janoir put an 80-h.p. two-seater, built for the Chilean Government, through its trials in the presence of Col. Dartnell and Capt. Avalos.



Lieut. Michele Mittleff, of the Bulgarian cavalry, together with Lieut. Stoyanoff, of the Bulgarian infantry, in the seat of their specially-built and armoured Sommer biplane, with which they last week left Mourmelon for the purpose of getting to the front and taking part in the present war.

A Gold Medal for M. Deperdussin.

THE Committee of the Aero Club of France has decided to present a gold medal to M. Armand Deperdussin, constructor of the machine with which Jules Vedrines was able to win the Gordon-Bennett Trophy for France.

Bouvier a Superior Pilot.

On his Goupy biplane with 100-h.p. Gnome motor, Bouvier, on the 17th inst., made his second test for his superior *brevet*, flying from Juvisy to Chalons Camp and back.

A New Three-Seater.

THE latest monoplane turned out of the Train works at Mourmelon is a three-seater with 70-h.p. Gnome motor, and with its full complement of passengers it has made several long flights. With Train in charge, it made a trial of over an hour's duration on Sunday last.

Cross-Country on a R.E.P.

HAVING arranged to give some exhibition flights at Prouais, Amerigo, on a 90-h.p. R.E.P. two-seater, with his mechanic and a useful load of 300 kilogs., flew over from Buc on the 17th inst., and after fulfilling his engagement returned to Buc.

At the Voisin School.

THE pupils of various nationalities at the Voisin School at Mourmelon are making good progress, and on the 17th inst. their instructor, De Ridder, accompanied by another well-known Voisin pilot, Colliex, flew over Rheims, Chalons, and Vitry-le-Francois, and after a brief halt at the last-mentioned place, returned to Mourmelon.

Two Hours on a Hanriot.

PONNIER made a two-hour trial on the Hanriot monoplane with Rossel-Peugeot motor, on the 18th inst., and Bielovucic took

up 160 kilogs. of ballast on a 50-h.p. military machine, 1,101 metres in 11 mins. "Biolo" and Frey afterwards tested four machines before handing them over to the French Army. Four more were delivered on Sunday.

At the Blériot School at Etampes.

LIEUT. CAZES and Sergt. Caron finished their training at the Blériot school at Etampes, on Saturday, by the usual flight of one hour. The former mostly flew at a height of just under 200 metres, while the latter went up to 725 metres.

Biarritz to Pau and Back.

ACCOMPANIED by two friends, Bernard on his Maurice Farman machine with 80-h.p. Salmson motor, on Sunday flew from Biarritz to Pau, covering the 115 kilometres in 1 hour 5 mins. He returned to Biarritz with his friends on Monday.

The Forezien Circuit.

ON Sunday last a cross-country race of 400 kilometres was held over four laps of the 80-kilometre circuit, Boutheon-Balbigny-Boen-Bouthéon. Molla, on his R.E.P. with Gnome engine, secured the lead on the first lap and kept it to the end, with Guillaux on the Clement-Bayard monoplane a very close second. For the first three rounds Vidart, on his Deperdussin, kept the first place, but then slight delay allowed Obre on his Anzani-engined Caudron biplane to get past, and he was not caught again. Molla's time for the 400 kilometres was 3 hrs. 55 mins. 59 secs., Guillaux's time being 4 hrs. 18 mins. 4 secs. The two other starters—Burel, on a Blériot, and Bobba, on a Goupy—had trouble with their motors.

Touring on the "Rhone" Sommer.

ON the Sommer monoplane with new Rhone rotary motor Gilbert has made several good cross-country flights lately, including Mourmelon to Valenciennes, from there to Amiens and back and then on to Issy and from there to St. Etienne. He was to have taken part in the Forezien Circuit, but was delayed on the way and could not reach the starting place in time. He, however, took part in the other competitions and won the altitude prize, going up to 2,800 metres.

The South German Circuit.

SOME splendid flying was seen in connection with the South German circuit last week, but unfortunately the success of the competition was marred by the double fatality on the third day, to which we have referred elsewhere. A dozen competitors started for the first stage from Mannheim to Frankfort, and with one exception they covered the distance without any trouble. After a day's rest, the second stage, the longest, being from Frankfort to Nuremberg was accomplished, but the mist did not permit of a start being made until the afternoon, when Hirth and Lieut. Joli both completed the course, while Lindpaintner and Lieuts. Beissbarth, Buttler and Vierling were *en panne* at Aschaffenburg with motor trouble. They were, however, able to get on to Nuremberg after some delay. The third stage on Saturday last was to Ulm, and the first to complete the 140 kiloms. was Hirth, followed by Baierlein, Lieut. Joli and Lieut. Vierling. The circuit finished at Munich on Sunday, and Hirth having led from the start, was the first to arrive. The others to complete the course were Lieut. Hailer and Lieut. Vierling.

A Long Flight in Germany.

ON Saturday last, Lieut. von Mirbach accompanied by Lieut. Beers, left Darmstadt and flew to Kaiserlauter. After a short rest the two aviators went on to Metz where they arrived safely, their net flying time between the two points being 2 hours 50 mins.

Aviator's Greetings for the German Empress.

ON the anniversary of the birthday of the German Empress, the pilot Januschke flew over the Royal Palace at Potsdam, and dropped a laurel wreath to which was attached a loyal address to Her Majesty.

Double Fatality in Bavaria.

WHILE competing in the South German circuit the Euler biplane of Lieuts. Beissbarth and Lange when at a considerable height was caught by the wind and capsized at Giengen am Brenz. Both men were so seriously injured that they died immediately.

Testing Italian Military Aeroplanes.

AN Italian Commission attended at the Mirafiori aerodrome on Monday to take formal delivery of three Blériot monoplanes built by the Italian Transaerea Co. of Turin. The machines were put through their paces by M. Perreyon, the well-known Blériot pilot, and the trials were watched by M. Blériot. The machines, with a load of 156 kilogs., climbed 1,150 metres in 14 minutes and also performed the duration test by making a non-stop flight of 3 hours.

"FLIGHT" PRIZES OF MERIT.

FOR reasons that we have explained in one of our leading articles elsewhere, we have decided to offer the encouragement of small money prizes to be awarded for especially meritorious contributions to the Model Section of *FLIGHT*. We have no intention of making a pretentious competition of the scheme, and in fact there will be absolutely no rules, and no competition in the strict sense of the word. Whenever the Editor considers that a reader has sent in an especially interesting and carefully prepared communication, which may be either in the form of a letter or an article, he will recommend the award of a prize, and the correspondent will receive a little certificate of merit accompanied by a cheque for 5s. It should not be difficult for any student of model aeronautics to win one of these prizes, but it will not be so easy that anyone can pick them up by merely writing a hasty note. They are prizes of merit and we have no intention of awarding them unless the communication is meritoriously above the average. To be meritorious it is not necessary that the communication should be either lengthy or complicated, but it is necessary that it should show real serious thought, an understanding of the subject written about, and be a good attempt to lucidly express the information in a way that can readily be understood by others.

Some subjects are adequately dealt with by a letter, others are better suited to a short article, while, with others again, the merit of the information may lie in the neatness and accuracy of a set of sketches, drawings, or photographs that illustrate how one may

make something that is worth while making. A set of dimensioned sketches illustrating a number of different paper gliders that can be cut from a half-sheet of notepaper and ballasted by a pen-nib or some simple object that is always ready to hand, would be a most interesting communication, but it would be quite worthless unless the sketches were made as the result of actual experiment with the models they represented. To make those experiments would take some little time, and would be exceedingly interesting and instructive to whomsoever undertook the work. We cite this as an example, because we wish to emphasise a point that is often overlooked, namely, that it is the simple things that are often the most interesting. A model that can quickly be cut from half a sheet of notepaper is a model that anyone can prepare at a moment's notice in order to illustrate some of the principles of flight to a friend who has not hitherto taken an interest in the subject. Some of the paper models that have been sent to this office for inspection and criticism have been almost as complicated as a scale model of a full-sized machine, and not really at all ingenious, seeing that the makers of them have lost sight of the fact that ingenuity in this matter consists in making use of materials that are likely to be available anywhere. With these remarks, therefore, we must leave our readers to exercise their own minds as to how they may best help themselves to win a *FLIGHT* certificate of merit and a prize or two, which, apart from redounding to their credit, will have the practical utility of diminishing the cost of their subscription to *FLIGHT*.

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Edited by V. E. JOHNSON, M.A.

Model Glider Competition.

"A MODEL ENTHUSIAST" writes us as follows:—

"I was glad to see from this week's *FLIGHT* (letter 1649) that I am not alone in thinking that there are still many valuable lessons to be learnt from the behaviour of paper gliders.

"It has often occurred to me that if a competition was held for paper gliders a very large number of interesting models, of types both old and new, would be brought together, and that it would prove a splendid opportunity for observing and comparing the behaviour of different types.

"The competition could be held in any medium-sized hall, and marks given for gliding-angle, stability, power of recovery when launched nearly upside down, &c. The winter, of course, is just the time for such a meeting, and, if rules respecting size of models, &c., were carefully drawn up, I do not see how it would fail to be both popular and instructive."

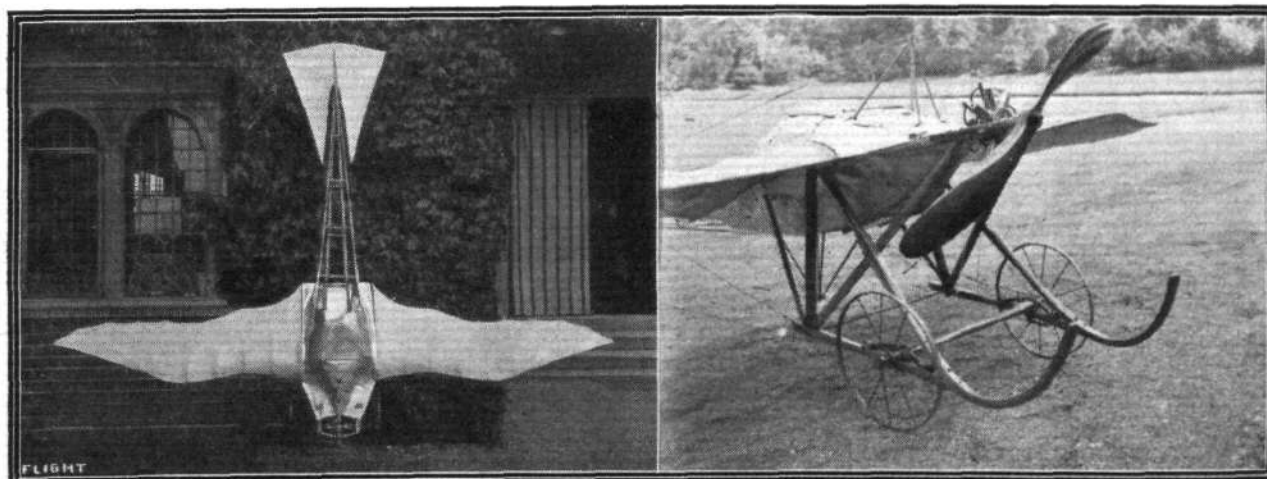
We quite agree with our correspondent's view, and shall be pleased to do anything that we can to further such a competition. Perhaps the secretary of the K. and M.A.A. (presuming he is not too busy with other matters) will bring the matter before his council with a view to organising such a competition.

As our correspondent says—there are still many valuable lessons

to be learnt from these simple models. A vast variety of such can be cut from so simple a thing as a sheet of notepaper and ballasted with a pen nib, a drop of sealing-wax, a wax vesta, a small piece of cane, a darning needle, &c., things that are always ready to hand. We shall be pleased to receive from our readers really successful examples of such for reproduction.

Mr. G. M. L. Goodall's Model.

We give, this week, four illustrations of this model, two showing it as a r.o.g. model and two others as a hydro-aeroplane. As will be seen from the photographs, the model is of considerable size and weight, the motor is a CO₂ Cetonia motor (previously fully described and illustrated in these pages), of 1'03-h.p., driving a 33 in. diameter propeller. The total weight of the machine as a hydro-aeroplane being about 27'5 lbs. As a r.o.g. machine it is about 24 lbs., the total area of the wings and tail being only some 12 sq. ft., it at once follows that its soaring velocity is (for a model) extremely high. The writer worked it out as 35 m.p.h., Mr. T. W. K. Clarke about 33, if we remember correctly. Generally speaking models do not carry much more than 8 ozs. per sq. ft., Mr. H. H. Groves' carry 1 lb. per sq. ft., the writer's steam model about 12 ozs. per sq. ft. (he is, however, now building one to carry 8 ozs. per sq. ft.), whereas Mr. Goodall's, as a r.o.g., carried 2 lbs.



Mr. Goodall's model, showing the bird-like form of wing surface, &c. On the right the model is seen as an r.o.g., showing, engine, propeller, and landing chassis clearly. In the photo the wheels look somewhat large, but are not so pronounced on the model itself.

per sq. ft. When converting the model from a r.o.g. machine into a hydro-aeroplane, the floats (see October 12th issue) were specially designed to increase the lifting surface, and the total area of supporting surface was thereby raised from 12 sq. ft. to 16½ sq. ft. in order to reduce the soaring velocity.

The reader should not fail to notice the flotation stability possessed by the machine, as shown in Fig. 3, and compare it with the want of the same exhibited by the Borel hydro-aeroplane (October 5th issue) which with its single central front float exhibits a total absence of lateral flotation stability. When drifting on the surface of the water, if struck by a side gust, such a machine must at once upset in exactly the same way that a model of similar type invariably does under the same conditions.

When testing the model as a hydro-aeroplane the number of experiments was strictly limited to two, such being the number of CO₂ cylinders at our disposal; as is usual in such a case as this, both cylinders had either not been fully charged or had leaked in the interim—the duration of their runs being 8 secs. and 10 secs. respectively, whereas a duration of 45 secs. had been obtained with the same cylinder (at a bench test) a few days before. Under these conditions, the model did not actually leave the surface of the water, although in the latter case it almost did so—the rear edge of the floats were just touching the surface of the water when the motor slowed down and stopped. And at this point the experiments had, unfortunately, perforce to be abandoned *pro tem.*, owing to Mr. Goodall's absence from the neighbourhood.

As a hydroplane, the machine was quite successful, commencing to hydroplane, practically speaking, from the beginning of the run.

The model is remarkable in more ways than one; the wings, for instance, were constructed by the well-known firm of Handley Page and Co.; the CO₂ motor is French, likewise the propeller, the cylinders and hot-water bottle were constructed by L. Desoutter, and the floats by the writer, the fuselage, &c., by Mr. Goodall himself.

Messrs. W. W. H. Rider and A. P. Hitchens' Experiments on Rubber.

We have received the following from the above:—"Referring to your remarks on our article in FLIGHT (October 5th issue), Series E gives only a rough indication of the deterioration in rubber due to continued use. Inferring from your remarks that more definite information under this head would be acceptable, we are about to carry out a series of experiments to determine the same, and, on its completion, shall be pleased to send you a brief epitome of the results."

We shall be much indebted to receive such, and make the suggestion that the rubber used be 1/8 and 1/4 in. square section, and 1/8 and 1/4 in. strip, in order to compare the two kinds. Also that all rubber, a sample of which will not stretch to about nine times its original length without fracture, be rejected.

An Appreciation.

It is always very gratifying to learn that any advice we give in these columns does really prove of use to those to whom it is given—it is perforce often nothing more than a suggestion that we are able to offer, consequently we are always very gratified to receive such a communication as the following, which has come to hand amongst others this week: "Many thanks for your reply of the 9th; I have done as you advised and the model is the best I have."



KITE AND MODEL AEROPLANE ASSOCIATION.

Official Notices.

British Model Records.

Hand-launched	Distance	A. E. Woollard	477 yards.
	Duration	A. F. Houlberg	89 secs.
Off ground	Distance	F. W. Jannaway	84 yards.
	Duration	G. Rowlands	30 secs.
Hydro, off water	Distance	G. P. Bragg-Smith	25 secs.
	Duration	H. R. Weston	84 yards.
Single-tractor screw, hand-launched	Distance	H. R. Weston	84 yards.
	Duration	F. W. Jannaway	11 secs.

Competitions.—On Saturday, October 19th, two kite competitions took place on Wimbledon Common. The first was an open competition for prizes presented by Messrs. Brooke and Westrop, viz., 1st, Brookite, value, 30s.; 2nd, Brookite, value, 25s.; 3rd, Brookite, value, 15s. The results (marks) of the first six competitors were:—

Place.	Competitor.	Type.	Angle.	Stability.	Strength.	Collapse-ability.	Total.
1	Mrs. W. H. Akehurst	Pilot box and wing	52	85	65	100	307
2	Mr. R. Fox	Crown	51	85	60	95	291
3	Mr. H. Stewart	Rhombus	62	50	60	100	272
4	Mr. F. Eads	Rolo-plane	50	60	55	90	255
5	Miss Gregg	"	39	65	55	95	254
6	Mr. C. Smith	"	40	40	60	95	249

This is the first occasion on which a lady competitor has won a competition in the Association's kite contests. The junior contest for prizes presented by the Aerial League of the British Empire, for cash prizes, viz., 1st 25s., 2nd 15s., 3rd 10s. The results were: 1st, T. C. Brown, with 280 marks; 2nd, Miss L. Akehurst, with 260 marks. The other competitors were flying well, but were

A Scheme for Model Aero Clubs.

The following scheme was sent us some months ago by a correspondent (Mr. Bertram Lewis), we have not published it before because we did not consider the flying season the most fitting time to place such before our readers, we have, however, much pleasure in submitting it to their serious consideration of which we think it is quite worthy. "The scheme, roughly and imperfectly stated, is this, that competitions should be arranged between the members of each club to find out various and definite things. That the winners of each club should compete and that the model of the ultimate winner should in that particular be standardized for the time being, while competitions are being held to standardize the next item. For instance, the first competition would be to find a good motor and propeller. This should be single, otherwise it would be impossible later to go into the question of body shape (perhaps the most important item and quite neglected at present). Instruction would be sent to all clubs of size, shape and weight of the body and landing chassis. For instance, the committee might agree that the body be square, covered in, 30 ins. long, 2 in. section tapering to 1 in. square; the main planes 30 ins. span, 5 ins. chord, the tail 12 ins. by 3 ins. Also, that the weight of the rubber be 2 or 2½ ozs., and total weight 8 ozs. Details would be given of construction, camber and incidence of planes, &c., so that superiority in flying would be left entirely to the arrangement of the rubber and propeller. Personally, I should suggest that this first test should be confined to a propeller of constant pitch, of a stated shape and cross-section of blade, one easy of construction, so that everybody could copy it, confining the competition merely to finding the most efficient diameter and pitch for given weight of machine and rubber.

"The second competition would be for body shape—given the same planes, &c., and the winning motor and propeller. The third, for shape and size of planes, giving certain camber, section, and construction. The fourth, for camber, section, and construction of planes, with the winning shape, size, motor, body shape, &c. The next for landing chassis, &c. Three and four might have to be combined, as the one has such an important bearing on the other, but in many ways it would be better to keep them separate, as much more could then be found out as to the relative properties of each."

Whatever criticism may be made *re* the above scheme, it is one which has a definite aim in view; personally, we think it would be an excellent thing to standardize a certain type, say, for next season's competitions, with a view to obtaining more accurate and reliable information with regard to much that is still very vague. As a type we suggest the r.o.g. single propeller tractor. We shall be glad to learn our readers' views on the subject.

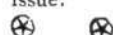
Replies in Brief.

HENRY GUARD.—Your communication to hand and shall appear in due course; kindly let us know per p.c. total weight of model.

A. F. BULL.—You had better write and consult Mr. T. W. K. Clarke who is a specialist on this subject.

TRIPLANE.—(1) Certainly, a triplane is well worth building, we know of no difficulty beyond what you mention; (2) Scarcely, unless convenient for the rest of your construction; (3) We should consider them outweighed; (4) Very possibly it is so when both are on the same shaft and revolve in opposite directions. We should not use this arrangement, the ordinary is better.

J. DOLLITTLE.—Photos, &c., to hand, and will insert in an early issue.



disqualified on account of their lines breaking. The judges were Lieut.-Col. F. C. Trollope, Messrs. Brooke, C. Davies and F. Pringuer. The competition for the best use a kite could be put to was postponed, as the judges considered the weather unsuitable to fairly demonstrate the various uses.

Next Official Trials.—The invitation of the Aero Models Association (northern branch) to hold the December trials on their ground at Finchley has been accepted with thanks, and the date fixed being Saturday, December 14th. All model flyers in the northern districts should enter for these official trials. Full details and route will be published in due course.

27, Victory Road, Wimbledon.

W. H. AKEHURST, Hon. Sec.



MODEL CLUB DIARY AND REPORTS.

CLUB reports of chief work done will be published monthly for the future. Secretaries' reports, to be included, must reach the Editor on the last Monday in each month.

Aero-Models Assoc. (N. Branch) (15, HIGHGATE AVENUE, N.).

OCTOBER 26TH. Enfield trophy challenge contest (for members only). Duration (r.o.g.) on formula. Competition starts 2.30 p.m., ends 5.15 p.m.

Hendon Model Aero Club (8, MONTAGU ROAD, W. HENDON).

OCTOBER 26TH. Originality prize. November 2nd. Monthly all-round trophy. November 5th. Night-flying visit to Collindale section.

Leytonstone and Districts Aero Club (64, LEYSPRING ROAD).

OCTOBER 26TH. Wanstead Flats (opposite brickfields), 3 p.m. October 27th at 9.30 a.m.

Southgate County School Ae.C. (72, NATAL RD., NEWSOUTHGATE).

OCTOBER 26TH. Practice for r.o.g. competition. November 11th. Review of models for exhibition, in workshop.

Windsor Model Flying (10, ALMA ROAD, WINDSOR).

OCTOBER 26TH. Meeting, Home Park, 2.30.

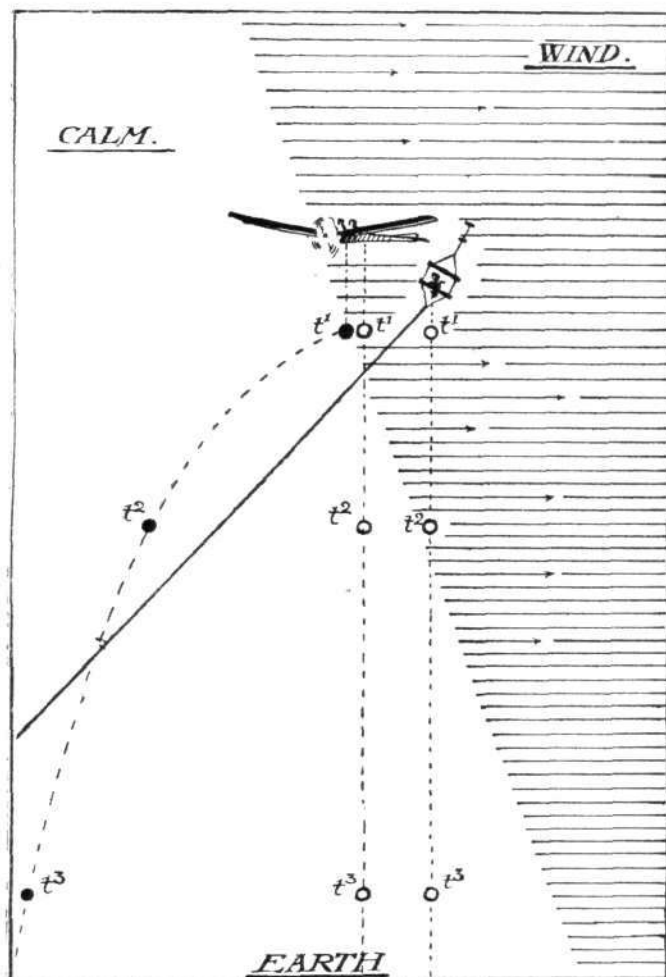
CORRESPONDENCE.

*. The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.

Correspondents communicating with regard to letters which have appeared in FLIGHT, would much facilitate ready reference by quoting the number of each letter.

Momentum in Air.

[1656] May I endeavour to show by diagram that an aeroplane stationary in space with regard to the earth has no momentum? Take the following imaginary case:—Two aviators arrange to go up in an aeroplane, to test their opposite theories; a third ascends in a "man-lifting" kite, as umpire. Each man, including umpire, is supplied with a lead ball, which, at an equal height, must have the same potential energy (gravity force), and, if stationary above the earth, one would think the same quality of inertia—that of a body at rest. One man declares that his ball has at that time kinetic energy (momentum) in addition; he is given a black ball, the other two white ones. Assuredly the kite man's ball has no momentum!



The force of the wind and the air speed of the aeroplane are presumed to be equal, the machine is stationary in space, but a hypothetical calm is near. It is agreed that the aeroplane shall be in line with the kite just before the calm ensues, and the balls be then simultaneously released so that their path towards earth may be observed. According to the law of falling bodies, and assuming the "momentum" theorist to be correct, his black ball should, upon emerging from the wind, dart forward, and describe a parabola before reaching earth. In the opinion of the "non-momentum" theorist the balls should fall plumb to the ground. How would the umpire decide?

Aeronautical Society.

J. F. SPONG.

Balloon Records.

[1657] I understand that some fifty years ago Messrs. Coxwell and Glaisher made an ascent in a balloon to an extraordinary height, and, in fact, were very nearly overcome by the rarified condition of the atmosphere. I wonder if you or a reader could kindly tell me to what height they ascended? I believe the height has never been approached since.

C. A. K. COX.

Negative Pressures on Wings.

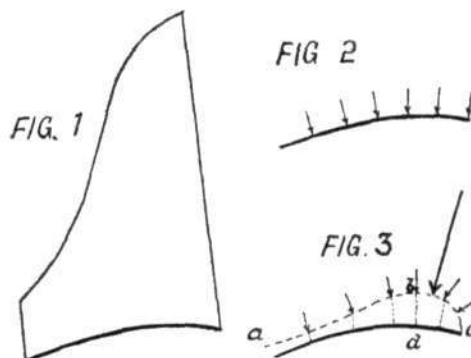
[1658] I am deeply sensible of your kindness in dealing with the subject of my letter (1631) relative to the nature of pressures developed on aeroplane surfaces. In that letter I did not make my position clear other than to express my conviction that "the vortex as an efficient principle in flight could not stand." Having so far committed myself I hope you will extend me the privilege of space for the following remarks in explanation of the view that presents itself to me.

I may say, firstly, that I employ the term "vortex" in what is perhaps a strained sense to denote a region of diminished pressure and, secondly, that I approach the subject entirely from the point of view of efficiency in flight. Your notes on Mr. Handley Page's lecture seemed to convey that negative pressure on the back of an aeroplane was of real utility, and that lift was actually derived therefrom. That was the view that interested me and caused me to ask for further information.

I am aware that many writers and some experimentalists hold the view that the upper surface of an aeroplane has a special function of its own which consists of deflecting the air stream upwards and so creating a vortex or region of diminished pressure on the back of the plane. This action, they argue, results in increased lift due to the difference in pressure on the under and upper surfaces, vortex action has with these people come to be regarded as the chief source of the lifting power of cambered aero-surfaces. There is very little doubt that vortex action does take place with aero-surfaces of coarse camber and abrupt angles of incidence. It is, in fact, entirely analogous to cavitation with marine propellers and, it seems to me, is just as much to be avoided in one case as the other. My view is that vortex action is the immediate result of inefficient camber and that an aero-surface is efficient just to the degree in which such action, either above or below that surface, is avoided.

Suppose, for the sake of argument, that the vortex is an efficient principle. What then becomes of our stream-line theories? They are all wrong, and theoretically it would be correct to mount something in the nature of a wind-shield along the leading edges of our aeroplanes so as to increase the vortex.

Experiments conducted by M. Eiffel, in France, and in England by Sir Hiram Maxim, go to show that with coarse aero surfaces, i.e., either plane surfaces at low angles of incidence or surfaces of deep camber, the negative pressures are very considerable, but a little thought will, I think, make it clear that lift cannot be derived from such pressures. According to M. Eiffel's experiments, the diagram of negative pressures would look something like Fig. 1, and



there is very little doubt that the diagram is correct. We can, accordingly, form a pretty close estimate of the action of the air on such surfaces as those on which M. Eiffel used in his experiments, and which had, I believe, the curvature of a segment of a circle. If we take one such surface in still air, we know that the air presses on the upper surface in directions normal to the surface itself, as shown by the arrows (Fig. 2), and with an intensity equal to in or about 14½ lbs. to the sq. in. If, now, a 40-m.p.h. blast be directed obliquely against the surface, we should get, according to the results indicated by M. Eiffel, a region of diminished pressure on the back of the surface, the greatest diminution taking place well forward towards the leading edge. For clearness, the case may be represented as in Fig. 3. The dotted line, *a b c*, is taken to be the film at the mean limit of the vortex region, the pressures above that film being still taken to be of intensity equal to 14½ lbs. to the sq. in., while those on the plane are diminished by amounts proportionate to the dotted ordinates. Let us suppose that the pressure on the surface at *d* is only 10 lb to the inch. This means that a force of

